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Improvement in Grape Frames.

The annexed figures represent the grape frame, for which a patent was granted to S. Oscar Cross, of Sandy Hill, Washington Co., N. Y., on the 27th of June last.

Fig. 1 is a perspective view, and fig. 2 is a vertical section, showing how the frame can be bent down so as to expose the grapes in a horizontal position.

The nature of the invention consists in an adjustable elevating and depressing grape frame for the better cultivation of the grape. The grape frame is constructed of wall strips, two by four inches, cut to any desirable length, say ten or twelve feet; and slats or cross pieces of about an inch in thickness and three in width, and six or seven feet long, are fastened about two feet apart to one edge of the wall strips. The vine is now placed upon the frame and slats fastened to the other side, thus securing the vine within the frame, as represented in the figure, B. The frame can be supported in any position by the legs attached to it, and can be fastened there by driving pins or stakes through holes in the foot pieces, or it can be fastened in various ways; the vine itself will secure the foot of the frame. The advantages of the invention are stated to be as follows, viz. The fruit is more easily gathered, as it can be brought to a convenient altitude, and the vine conveniently lowered to the ground when it can be covered with straw or otherwise to protect it from winter killing. The size of the fruit is increased by allowing the frame to lie on or near the ground, which secures to the vine a greater amount of heat as it receives warmth from the earth as well as from the sun, and is not exposed to cold winds as much as those on elevated frames; the quantity is also increased as it sets abundantly and grows larger on or near the ground. The grape beetles and insects are not as destructive to buds and foliage on or near the ground as on elevated frames. Care should be had not to expose the fruit to too much sun during the early stages of ripening, but the process should be completed by giving it a full exposure, as frame A; the fruit is readily protected from light frosts, as it can be lowered to the ground, where it is less exposed, as in fig. 2, and if necessary can be easily covered; or if the ground had been sown with corn or oats, as soon as the fruit was sufficiently advanced to admit of elevating the frame, it would form a mat in which the fruit would be imbedded so as to protect it from light frosts, and would be of service to protect the vine from winter killing. Thus, by this adjustable frame and method of managing it, tender and choice varieties can be raised and ripened in northern latitudes with less trouble and a better prospect of success. The invention is adapted to a variety of forms and can be used in several ways: a frame can be so constructed as to turn back against buildings, fences, &c., and dispense with legs and foot pieces attached, prop legs (fig. 2) being used instead, or a row of posts set north and south will support two rows of frames, one on each side,

CROSS' GRAPE FRAME.

Fig. 1.

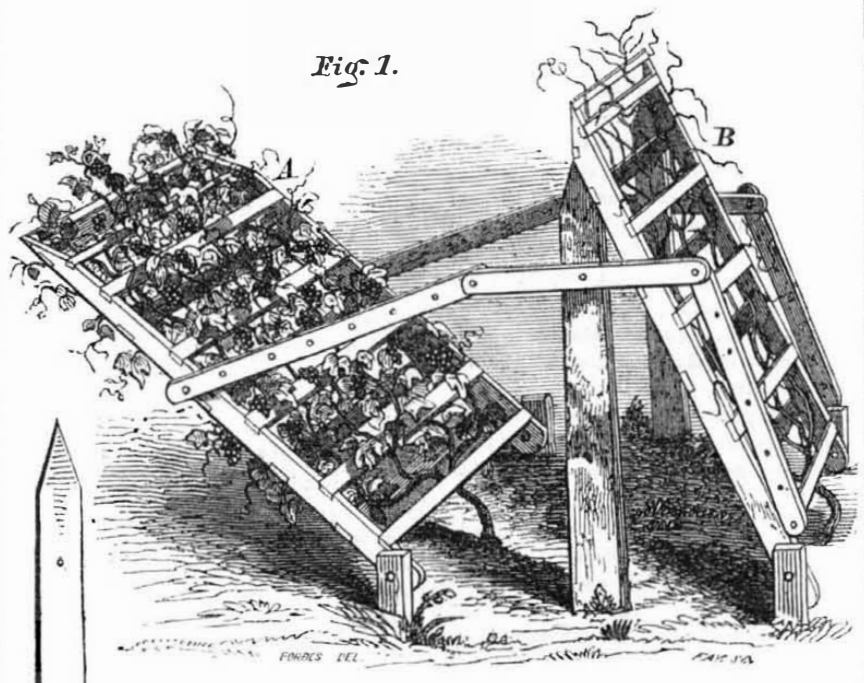
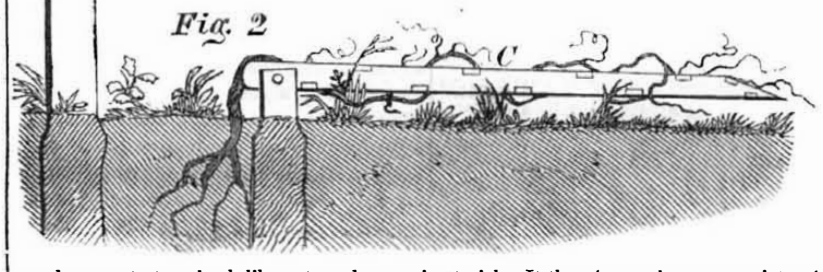


Fig. 2



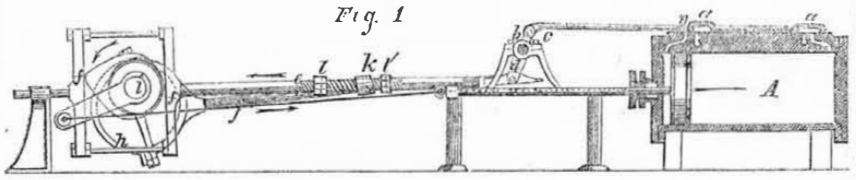
made so as to turn back like a trap door, as in fig. 1, being held in any position by means of supporters attached to the frame on the upper side, the other end being held to the posts by pins passing through both; the frame can be elevated or depressed by a series of holes in the supporters.

The claim is for an Adjustable Elevating and Depressing Grape Frame, with or without supporters attached, and made of any known material. It therefore embraces a variety of modifications not represented in the annexed figures. The benefits of such a grape frame appear to be of great importance and value. They deserve general attention. Every farmer should have a good vinery, and pay attention to the proper cultivation of the grape.

More information respecting it may be obtained by letter addressed to Mr. Cross, directed as above set forth.

DARLING'S VALVE MOTION.

Fig. 1



On the 11th of last month a patent was issued to Martin V. B. Darling, of Providence, R. I., for an improvement in the valve motion of steam engines, which is represented by the annexed engraving—a longitudinal section of a cylinder and slide valve of an engine, and side view of the valve motion.

The invention consists in a certain mode of combining together and applying to the valve a cam and eccentric, the former for moving the valve to open the steam ports and the latter to close them, whereby the ports are opened and closed with sufficient rapidity to enable the steam to be admitted full on the piston, and cut off at any point between about one-fourth or even less, of the stroke of the piston, and the end of said stroke. A, is the steam cylinder, which is represented with a separate exhaust port for each steam port, and fitted with two valves, *a a*, but this is not essential to the invention, as it is well understood that the operation of the single short slide is the same as that of the two valves, as represented. *b* is the way shaft, carrying the arm, *c*, to which the valve rod is attached, and the arm, *d*, with which connects the rod, *e*, from a yoke, *f f*, which surrounds the cam, *g*, on the crank shaft, *i*. This cam is of such form, and so arranged upon the shaft, that it will give the proper length of stroke to the valve for opening first one, and then the other of the steam ports, and that it will open the ports wide very early in the stroke of the piston. It fits to the yoke in such a way, that very soon after it has passed the position at which it arrives to open the port wide, it will allow the yoke to receive such a movement independently of it, as would cause the valve to close the port. At the side of the cam, *g*, is placed the eccentric, *h*, which is made capable of giving about twice the amount of motion given by the cam, *g*, in order that it may be capable of giving the valve a quicker motion than the cam. The eccentric rod, *j*, which receives the motion of the eccentric, has an eye, K, rigidly attached to its end, and this eye is of such size internally, as to be capable of sliding freely on the yoke rod, *e*, or of allowing the said rod to slide freely through it, and the yoke rod, *e*, is furnished with two fixed stops or tappet pieces, *l l*, one on each side of the eye, K, to control the sliding motion of the eye and the rod, the one upon or within the other. The eccentric requires to be set in such relation to the crank as the desired point of cutting off may require. If it be desired to cut off at half stroke, the eccentric is set one quarter of a revolution in the rear of the crank; if at one quarter of the stroke, one-eighth of a revolution—if at three quarters of the stroke, three-eighths of a revolution, and so on. The above rule applies only when the valve receives its motion directly from the shaft, but when a counter motion is used, as represented, the eccentric requires to be in a position diametrically opposite to those described, as an illustration of which, see the figure where the steam is intended to be cut off just after half stroke, and the eccentric is set a little less than half a revolution in advance of the crank. The distance between the stops, *l l'*, on the yoke rod should be equal to the length of motion given by the eccentric, *h*, plus the depth of the eye, *k*, and the position of the stops on the yoke rod will depend upon the length of the eccentric rod, which may be about half that of the yoke rod. The operation of the cam and eccentric on the valve are explained by the figure, where the direction of the revolution of the crank and the motion of the piston, are indicated by arrows, the cam has nearly arrived on its center and the steam port, *n*, is nearly wide open.—The yoke rod is now moving in the direction of the top arrow, but the eccentric rod is moving in the opposite direction, as indicated by the under arrow. As soon as the cam arrives on its center, the port will be full open, and will remain so as the cam continues its movement, owing to the shape of the cam not being such as to return the yoke rod at once. The eccentric, as it continues moving in the same direction, will bring the eye, *k*, in contact with the stop, *l'*, and move the rod, *e*, along with it, until by the time the eccentric is on its center, the valve has moved back far enough to close the port, *n*. It will be understood that a similar action takes place during the movement of the piston in the opposite direction, the eccentric always leaving the valve or valves in proper position to be operated upon by the cam when it comes round.

The patentee does not confine himself to an eccentric to close the valve, as a cam would effect the same result, but an eccentric works and wears more smoothly; the cam is only used to open the valve, for the sake of opening the port fully, very early in the stroke of the piston. The improvement appears to be a very excellent one indeed.

More information may be obtained by letter addressed to Mr. Darling.

Death of an Astronomer and Mechanician.

The English papers announce the death of John Fulton, a self-taught astronomer and skillful mechanician. He was a native of Fenwick, Scotland, and first made himself known by constructing an orrery, which excited much admiration wherever it was exhibited. He was a working shoemaker in his native village, of scanty means and education. He went to London, and was employed as a mathematical instrument maker, and exhibited great ingenuity and skill in making theodolites for the Pacha of Egypt, and balances for the Mint in London.

Enclosing the Track.

The Philadelphia, Wilmington, and Baltimore Railroad company, it is stated, are actively engaged in collecting material along the line of their road, preparatory to enclosing the same with a substantial fence. This is right. We have recommended this a number of times for all our railroads.

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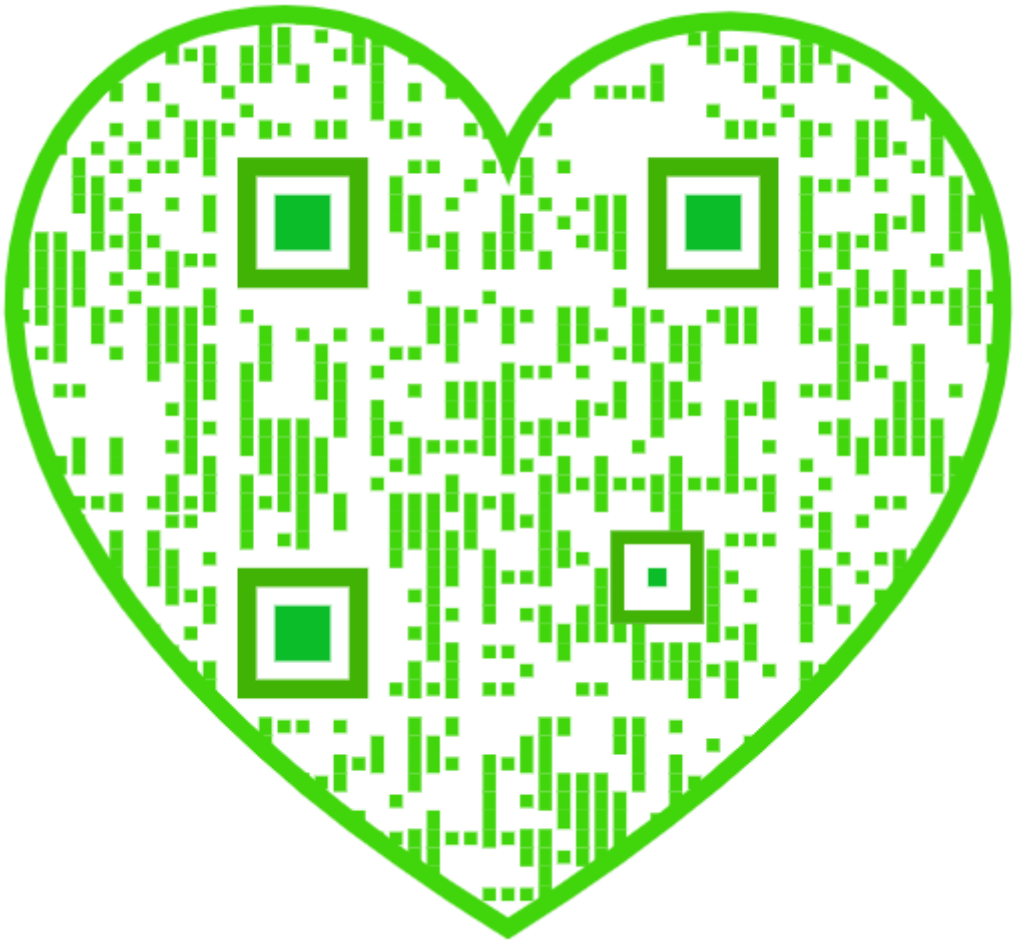

Means of Preventing the Formation of Incrustations in Boilers.

The following is for the most part an abstract of a recently-published work by Dr. Elsner, German:—

On the means hitherto employed in preventing the production of scale in steam boilers, with the addition of some original observations upon this subject.

Potatoes.—Of these, one-fiftieth of the weight of the water is said to be sufficient to prevent the incrustation. According to Elsner, crusts already formed are not removed by potatoes. The action is mechanical; the calcareous particles, when separated, becoming coated with the slimy matter of the potatoes, which prevents their forming a coherent deposit.

Fatty Oils, Tallow.—Oil, when poured into the water, is said to prevent incrustation. According to Kennedy, the inside of the boiler should be well rubbed with a mixture of three parts of black lead and 18 parts of tallow. Newton recommends 1 part of tallow, 1 part of black lead, and $\frac{1}{4}$th part of powdered charcoal. The statements as to the degree of protection afforded by this agent are satisfactory.

Sawdust.—A patent was obtained in this country about eight years ago, for the exclusive use of mahogany sawdust introduced into the boiler. Indian meal introduced into the boiler has also been tried with success. Ira Hill replaced the mahogany dust by oak dust, and any other wood will serve equally well. The disadvantages of this prevention is the readiness with which the sawdust may be carried into the pipes, cocks, valves, &c., where it might produce evil consequences. The action of the sawdust is also mechanical.

Clay, free from sand, and worked up with water, is recommended by Chaix. Aldefeld found that this agent prevented the formation of scale; but that, on the other hand, it produced a slimy coating in the pipes, and rendered the steam cylinder rough. Its action is also mechanical.

Ammoniacal Compounds—Ritterbrand, in 1844, patented certain ammoniacal compounds, especially muriate of ammonia. Elsner regards this proposition as the most deserving of notice. As much muriate of ammonia is added to the water as it contains carbonate of lime in solution. This agent also softens old incrustations, but for this purpose something more than the quantity just mentioned is required. Its action is chemical; from the muriate of ammonia and sulphate or carbonate of lime, are formed chloride of calcium and sulphate or carbonate of ammonia. The latter salt is somewhat volatile; if the steam is to be employed in heating color baths, it is necessary to ascertain whether the volatile alkali will have an injurious action. Elsner states that 1 lb. of muriate of ammonia is sufficient for 20 cubic feet of well-water containing gypsum. Muriate of ammonia is preferable to carbonate of ammonia. In the 'Verhandlungen des Hollandischen Ingenieurvereins,' there are two papers on the employment of muriate of ammonia. The first, by A. A. C. de Vries-Robbe, shows, that in the locomotives on the Dutch railways 2 ozs. of muriate of ammonia for each boiler is sufficient to clean incrusted boilers in a few days. This quantity, put in twice a week, keeps the boiler quite clean; iron and copper are not dissolved by it. The second paper, by C. Scheffer, states that in the royal wood-cutting establishment of Holland, a perfectly clean boiler was supplied weekly for four months with 2-10ths of a pound of muriate of ammonia, when 40 lbs. of scale were found to have deposited. The boiler was worked fourteen hours daily with water containing gypsum.

With the addition of 4-10ths of a pound of muriate of ammonia twice a week for five months, with the same amount of daily work and the same water, 60 lbs. of scale had deposited. In both cases the deposit was more upon the sides than upon the bottom of the boiler, and much less than without the use of sal-ammoniac.

Mixture of Extract of Tannin—J. Delfosse patented a mixture of 12 parts chloride of sodium, $2\frac{1}{2}$ parts caustic soda, $\frac{1}{3}$th extract of oak-bark, $\frac{1}{2}$ of potash, for the boilers of stationary and locomotive engines. The principal agent in this appears to be the tannin of the extract of oak-bark. Elsner recommends the roughly-cut root of the common tormentil for this purpose, on account of the large quantity of tannic acid it contains.

A patented process is now in use England, which must be mentioned here. Spent tanner's bark is put into the boiler. To avoid the chance of the bad result already referred to with the sawdust, the bark is put into a perforated vessel, which is suspended near the surface of the water, and kept in the right position by means of a float. The bark is renewed from time to time. The patentee supplies the whole apparatus for about £2 10s., and publishes many testimonials to show that his process is perfectly successful.

According to Cave, pieces of oak wood, suspended in the boiler and renewed monthly, prevent all deposit even from waters containing a large quantity of lime. The action must depend principally upon the tannic acid.

Starch-sugar Molasses, Syrup—Guinon put into a boiler, $17\frac{1}{2}$ feet long and $3\frac{1}{2}$ feet in diameter, 5 kilogrammes of molasses every two months; he found that this completely prevented incrustation.

Guimet proved the advantage of this process, but employed brown starch-syrup, three pounds every six months for a boiler of eight horse power.

Tin salt (chloride of tin,) is recommended by Delandre; it is similar in its action to muriate of ammonia; but as it is cheaper it is to be preferred.

Soda and potash have been recommended by Kuhlmann, and more recently by Fresenius. According to the latter, the property of forming crust occurs more with water containing gypsum than with that containing chalk.

Kuhlmann recommended the addition of 100 to 130 grms. of soda monthly to every horse power with water containing sulphate of lime. Elsner observes that too much soda might injure the solderings and joints. Zimmer, of Frankfort, who long employed this method, found that the boiler was strongly acted upon; he ascribes this to the presence in almost all sodas of cyanide of sodium, which possesses the power of dissolving iron.

Recent Foreign Inventions.

Hulling Rice.—G. A. Buckholz, of London, has obtained a patent for machinery to dress rice, and which he also employs for scouring wheat, &c. He mounts a conical stone on a vertical axle, and surrounds the stone with another forming a case. A thread is cut on the conical stone, and a space is left between it and the case stone, of such a form as to gradually contract. A number of pebbles are introduced along with the rice to be hulled, and the coninal stone is set in motion, the rice being fed in at an opening near its apex, is carried down spirally, and discharged at the bottom.

Substitute for Gutta Percha and India Rubber.—A. T. Sorel, of Paris, has taken out a patent for a new composition, asserted to be a substitute for the above named substances. It consists of two parts (by weight) of colophony, twelve of pitch or bitumen, eight of resin oil, six of the hydrate of lime, twelve of gutta percha, ten of pipe clay, and three of water. These ingredients are all to be melted together in an iron vessel, and when well incorporated by heat and stirring, the compound is to be used as a whole for gutta percha or india rubber, which substances are much higher in price than the new compound. The question arises, "is the new compound as good as the substances for which it was designed as a substitute?" We have given the quantities, so that any person may try the experiment.

New Ventilating Hat.—R. Husband, of Manchester, England, has secured a patent for a hat in which there is a second band lining placed in the interior, and so secured as to preserve a space between it and another lining for the purpose of affording a passage for currents of air, which are intended to pass out at an orifice at the crown. We must say, that although the temperature of England is, on an average, 20° lower than ours in the summer, more attention is paid by the hatters there in ventilating silk hats, than is paid by our hatters. The reason is that few black silk hats are worn during our hot weather. But we believe that the silk hat demands to be a ventilating one for winter as well as summer. It is almost air tight, and in this sense must be injurious to the health of the head. Every silk hat should be made *a ventilator*.

Purifying Gas.—The Rev. W. R. Boudich, of Wakefield, England, has obtained a patent for purifying gas, by employing clayey earths either alone or in combination with lime. The earths so employed are afterwards used by farmers for manure. It is well known that aluminous earths possess the quality of absorbing and retaining ammonia; they therefore absorb the ammonia which is set free in the distillation of the coal of which the gas is made, and as ammonia is an excellent fertilizing agent, the products of the gas works thus become servicable for raising wheat and corn.

Sustitute for Steam.—C. H. Stansbury, of London, has taken out a patent for the employment of the bi-sulphuret of carbon in the place of steam, as a motive agent. The inventor fills an ordinary boiler of a steam engine with this substance and applies heat, or he fills the boiler partly with water and ejects the bi-sulphuret of carbon into it, as the constant feed, when the water is heated above 116°. This is an ignorant, foolish idea, as the vapor of bi-sulphuret of carbon is heavier than steam, just in proportion to its lower boiling point in comparison with that of water.

A Microscopic World.

The city of Berlin, in Prussia, is situated in the midst of a broad, flat plain, and is built upon both sides of the sluggish river Spree. Beneath the city there is a deep bog of black peat, through which borings for water have frequently been carried. Professor Ehrenberg, a gentleman whose explorations into the mysteries of microscopic life have attained for him a high position among the scientific men of the age, says that this peat, at the depth of fifty feet, swarms with infusorial life; that countless myriads of microscopic animals live there and wriggle and die. The perpetual motion of these little animals causes the whole mass of peaty matter to be in a state of constant though generally imperceptible movement.—In Berlin the houses, however, are wont to crack and yawn sometimes, in an exceedingly curious manner, even though built on apparently stable foundations; and Professor Ehrenberg believes this to be owing to the changes and motions of this invisible world—to the combined efforts of infinite millions of tiny forms, which, conspiring in the same direction, produce sensible, and oftentimes disastrous movements of the surface, resulting in the injury or ruin of the buildings above.

Water Wheel Challenge.

Henry Van Dewater, of West Troy, N. Y., takes exceptions to our reply to a correspondent in No. 50, in reference to Parker's water wheel, and demands a trial with the best wheel which can be brought against his improved one.

He is very sensitive upon the subject, and is willing to bet almost any amount. This brings up a subject which we have often thought of, viz., a thorough test of the power of different water wheels, so as to determine their relative merits. We would like to see a sharp competition upon this subject, and here is a chance for any one who thinks he has the best wheel extant. We advise Mr. Van Dewater to keep cool and not to bet a cent with any one. The better plan would be for each competitor to pay his portion of the expenses. Who now among our manufacturers of water wheels stands ready to take up Mr. Van De Water's proposition, and enter into a correspondence with him for bringing about the trial at an early date.

Advance in Railroad Fares.

A meeting of the representatives of the New York and Erie, New York Central, Hudson River, Pennsylvania Central, and Baltimore and Ohio Railroad Companies has been held in this city, and an advance of the rates of passage and freight has been agreed upon, and a reduction of the service and the speed. Whatever prices are necessary for a fair return to the stockholders should be cheerfully submitted to, but the speed should not be diminished unless from considerations of safety.—The convention decided against the employment of runners or agents for the sale of tickets, and against issuing free passes to persons sending goods over the roads, and this we think was right. Measures were also recommended to secure adequate compensation for mail service, which is represented as being below the rates of freight.

Things to be Remembered.

Hints when seasonably applied are often the means of bringing the mind to mature and satisfactory conclusions. There is no condition in which they may not be found valuable, and we do not think of any occupation more perperplexing than that of the Editor and Publisher when his patrons omit to observe the following hints. Mark them down on the tablet of memory, and when you take up your pen to write to a newspaper publisher, come right to the business at once, and in plain terms. If you write for publication, use only one side of the sheet, and be sure not to omit your name, as otherwise you might be mortified if your MSS had been destroyed. Always take copies of correspondence, this is easily done, and may save future trouble.

In sending subscriptions state plainly to what address you wish the paper sent; we are often bothered and abused by those who have only themselves to blame, in not receiving the paper. We are glad to say there are few who are so unmanly.

Publishers of respectable journals always desire to *increase* their circulation; they would soon ruin their business by any other than the most honorable management. When our paper is not regularly received we always wish to be advised, and the error will be corrected if it lays in our power to do it.

We do not send receipts by mail; if the paper is received it is evidence of the receipt of the money, *as we invariably discontinue it at the time the subscription expires. We make no exception to this rule.* If a subscriber gets more papers than he has paid for, he is welcome to them, and if less, we will correct the error if satisfactorily pointed out to us. We solicit articles from practical men upon all subjects relating to the arts and sciences, and if deemed useful and interesting, they will be published for the benefit of our readers; we shall exercise great care and independence on this point. We attend to binding volumes in a substantial manner for seventy-five cents. Missing numbers will be supplied when we have them, and specimen numbers are sent free upon application.

Hilly Ground and Sea Winds.

Richard Adei, of Liverpool, in an article in the "Edinburgh Philosophical Journal," asserts that hills, near the sea shore, check heavy currents of winds, and tend to preserve vegetation—trees, and flowers, in their neighborhood. He had observed, where the sea-board was backed up by hills, that trees grew with vigor a comparatively short distance from the coast, whereas, in those places which presented a broad and extensive level near the sea coast, the trees were stunted and had a poor appearance. During storms at sea, when the wind blows on the shore, there is what is called "spoon-drift," a technical term employed by sailors to water raised into the air from the sea by the wind striking the tops of agitated waves, and carrying this salt water drift in sheets and showers to a great distance. This salt spray is sometimes carried far in-land, and of course acts as a poison to the foliage of trees and shrubs.

There are but few who have not noticed the rich foliage of some trees near certain parts of the sea coast, and the stunted scrubby appearance of some trees on other parts of the coast. The cause of this is accounted for by the above observations.

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India Rubber Law Case in England.

MESSRS. EDITORS.—Your article on the subject of the india rubber patent case, tried June last, in England, is—manifestly—one sided, and though very American in feeling, is not entirely just to truth. And here permit me to say, I do not attribute any intention on your part to do injustice to anybody, for I have so often had occasion to notice the independence and honesty which stamps the "Scientific American," that I cannot suppose in this case the least intention of being one-sided—but you are misinformed. In the first place the simple vulcanization of india rubber mixed with sulphur never was known in this country by Charles Goodyear as a possibility till after 1845, and in the next place the result is different and requires entirely different treatment from that described in Goodyear's patent of June 1844, and re-issued 1849.

The great fact that rubber and sulphur could be vulcanized for any practicable or useful purpose, was not known to Charles Goodyear *till after* 1845. Nor was the fact known or believed in this country till the English discovery. The process of Hancock is different, and the result different from that claimed by Charles Goodyear.

The large experience which I have had enables me to know the simple vulcanization of rubber was first imported here from England in the published patent of Hancock. The process which Charles Goodyear used in making what he termed "metallic rubber," (taking the term metallic from the large quantity of lead used) was 25 pounds rubber, 7 pounds lead, and 5 pounds of sulphur, submitted to a heated atmosphere in an oven. Simple rubber and sulphur cannot be vulcanized to be useful for any known practicable purpose in a heated atmosphere to-day, though it can be in steam—which is substantially and chemically different from heated air, and was the discovery of Hancock.

That yourself and readers may have a true knowledge of the English trial, I inclose you an extract from a letter of a distinguished English barrister, addressed to me; he says:—

The case "ended in the jury being discharged by consent, as they could not agree, one holding out for the defendant against all the others on the question whether the samples sent by Goodyear or Moulton, which arrived in England about October or November, 1843, had arrived and were published prior to the date of Hancock's patent, Nov. 21 1843. The jury might have found for the defendant, Ross, on that issue without prejudicing Hancock's patent. The Judge told them that Hancock's patent, for the simple compound of sulphur and rubber acted on by heat, was perfectly valid, notwithstanding Goodyear's patent or invention for sulphur lead rubber. Then so far as the opinion of the judge goes, it confirms entirely the view as to the invalidity of Goodyear's re-issued patent, which you have always entertained and contended for. The trial also went to impeach Goodyear's patent here altogether, because, according to our law, no man who has had the profitable working of an invention, can after that, make it the subject of a patent, so that any idea of piracy upon Goodyear's patent in this country is at an end. Mr. Goodyear was called as a witness, but nothing very material was elicited from him except that his first goods were not merchantable or marketable. The cause will be tried again in December, when I have no doubt of Mr. Hancock succeeding to the fullest extent, as both Judge and jury were breast-high with him, as the inventor of the simple sulphur and rubber compound; that is, the pure and simple vulcanization as contended for. This result must be a terrible blow to any interest in Goodyear's patent, either here or in America, because their invalidity is clear, and nothing remains but Hancock's, which appears to me to override all of them. The practical result of this litigation, then, has been to impeach the Goodyear and to set up the Hancock patent. Nothing whatever occurred to affect the validity of the latter, that is of Hancock's patent of 1843."

Comment is quite unnecessary. This decision is entirely in accordance with the late decisions of the majority of our Supreme Court in two recent great patent cases, namely, the Woodworth Planing Machine, and the Morse Telegraph cases. HORACE H. DAY.

New York.

[The above communication relates to the English patent law case, which we published on page 373, with such comments as naturally arose from an account of the trial in our London cotemporaries. In the account presented by the "London Mechanics Magazine," Hancock, the plaintiff and English patentee, said he had not been led to make his experiments to produce vulcanized india rubber, until he had seen specimens of American rubber manufactured by Goodyear. The letter of Mr. Day places the matter in an entirely different light from that which the public has entertained respecting what constitutes the *heart* of the invention or process for making valcanized india rubber. The combination of sulphur with india rubber at a high heat has been held to embrace the *principle* of the invention, but Mr. Day says that it is the action of *steam* upon the compounds of sulphur and india rubber, that constitutes the *core* of the invention. If *steam* then is the main feature of the invention, and if that is Hancock's, then Goodyear's patent must be invalid, that is, if he cannot and does not produce a useful manufacture by it. *Steam*, then, by this view of the question, is the pivot on which the whole matter turns.

(For the Scientific American.)

Circular Saws.

In former numbers of the "Scientific American" there is much information given concerning circular saws, but there appears to be some information yet wanting by many persons: the quantity of lumber that they should cut in a given time, and the power necessary to drive them, do not appear to be generally known. They take much more power than is generally supposed, if they do a good business.

The Messrs. Stevens, of Dyersburgh, Tenn., have a steam mill with a sixty-inch circular saw, for the purpose of cutting lumber from logs. In their ordinary sawing they saw 100 feet, surface measure, in two minutes; they cut through a line 22 inches deep and 12 feet long in 15 seconds, and back and start in 10. They say they have cut through a line in 8 seconds. Is 100 feet in two minutes' good sawing? Their engine makes over 60 (three and a half feet) double strokes, in a minute, with a ten inch cylinder—equal to about one horse power for each pound of steam per square inch in the cylinder. And from their having an extra weight on the lever of the safety valve, it was supposed they had at least a hundred pounds to the inch in the boiler.

The quantity that a circular saw can be made to cut, seems as yet only to be limited by the power—none having as much power applied to them as they will bear. They may be made to revolve 1,000 times per minute, and cut two inches forward at each revolution in a two feet log. But it would take an immense power (perhaps 150 horse) to drive them.

There are three things requisite in order that a circular saw may cut a straight line and not heat:—First, a good saw. Some saws are not good when they first come from the factory, and others do well at first, but soon get spoiled. If all parts of the saw are not of equal temper, and equally stretched, they will not do well; but they may be repaired by hammering by one who understands it.

Second, the journal of the shaft should have end play; it is impossible to run a circular saw successfully unless it can play laterally: for the least spring of the log, or variation in the cut of the saw, will cause the wood to press against the side of the saw, and heat it, unless it can yield to the pressure.

Third, the teeth of the saw must be in order; they should be so spread at the point that but little set is required, and that no part but the points will touch the wood. The front of the teeth should be so inclined that a line drawn with them would cut off a segment of one-fourth of the diameter of the saw.

With a good saw, having sufficient end-play in the shaft and guide rollers properly adjusted, and the teeth in good order, a circular saw will never heat or cut a crooked line.

Jackson, Tenn. J. B. CONGER.

(For the Scientific American.)

The Dark Day.

In the "Scientific American" of June 24th, page 327, is the following:—

"H. D. B, of Cal.—Your question propounds to us the very subject we have been wishing information upon for some time. Who among our intelligent readers will impart some facts concerning the remarkable dark day of which we have all heard from the lips of our grandmothers? Was the phenomenon ever accounted for? What was the terrestrial and celestial appearance of the universe? Who will enlighten our inquirer and ourselves upon this matter?"

The dark day here referred to, it is presumed, was the one which occurred on or about the 1st of May, 1780. Of the appearances I have only traditional information, but believe the following to be substantially correct. The sun was visible a part of the day, red and without beams. A part of the day was cloudy with some rain. At 12 o'clock, or at the dinner hour, it was so dark that candles were used. Towards night the darkness abated, but during the following night it was intensely dark, so much so that persons lost their way though near home. During the whole time the wind was quite light. The darkness continued about twenty-four hours, and the foregoing were the phenomena while it lasted.

The following is offered as a solution:—The red and beamless appearance of the sun was caused by the smoke arising from numerous and extensive fires, common at that time in the spring. Storms are of two kinds: the first when the current of air is in one direction; the second when the storm is a whirlwind.—The great snow storm in the latter part of Feb., 1802, is an instance of the former; the snow storm in the beginning of March, 1853, is an instance of the latter. I am obliged now to write from recollection but believe that by turning to the papers of the day it will be found that it snowed in New York State on Wednesday, at Washington on Thursday, and in South Carolina, early on Saturday morning. In a whirlwind or cyclone storm, the extent the force of the current, and duration are exceedingly various. In the snow storm last mentioned, the air was light, and shifted to every point of the compass. In the middle of the whirlwind there is a calm, which will terminate as the whirlwind moves on. The duration of the calm will depend on the extent of the whirlwind and the slowness with which it moves.

From the foregoing it will appear that the cause of the dark day of May, 1780 was a whirlwind or cyclone storm. That the storm was of great extent, the center of it darkened by rain clouds and by smoke accumulated from numerous and extensive fires, and driven thereby light currents of air in every direction.—Finally, that the motion of the whirlwind was slow, which is indicated by the long duration of the darkness, and the absence of high wind. I have used the word storm for want of a better, because the darkness was accompanied with rain. MANNING BELCHER.

Laurensville, Aug. 20th, 1854.

(For the Scientific American.)

Treatment of Persons Struck by Lightning.

In No. 38, on page 298, present volume of the "Scientific American," Mr. E. Merriam, the Meteorologist, of Brooklyn, renews the recommendation, "that persons struck by lightning should be drenched with cold water, even to the continuance for hours, to restore suspended animation." Having seen the article copied in many papers, and circulated all over the Union, I am induced to send you the following:—As a general rule, when it can be applied immediately after the occurrence, it may have the wished-for effect, but if some time has elapsed, I very much question the propriety of using cold water. My reasons are these:—On the 20th of July, 1847, I was struck by lightning,—I was under a shed at the time and asleep. I knew nothing of the occurrence; I was found on the ground about an hour afterwards and carried to the house; two medical gentlemen were sent for post-haste, and after the lapse of another hour both arrived nearly at the same moment. The younger of the two advised the application of bucketsfull of water; but fortunately for me the counsel of the elder, and I think wiser, of the two prevailed, and as soon as the water could be heated, I was placed in a warm (blood-heat) bath. The consequence of this course was, that in a few minutes I became sensible, and then began to feel the most excruciating pains in my arms and legs, and at once knew what had happened. The pain in the lower extremities passed off immediately, but in the arms I suffered to such an extent for months that I could not sleep—could not lay in bed—had no rest day nor night—was so much worried and worn out by constant wakefulness, that I would frequently fall into a doze while walking the room. I was bled after coming from the bath, and once each successive day for six days,—near a quart each time; I then became so weak that further depletion was considered dangerous. Still the pain remained in my arms, and time alone brought relief; but even now, after seven years have passed away, I feel it occasionally, and cannot bear fatigue. I will not, however, trouble you with a full history of my case, but merely wish to caution the public against an indiscriminate use of cold water in all cases. Cold water may, if it can be applied immediately before the system becomes chilled, and in many cases not doubt has, relieved the patient; but, as in my case, after a lapse of some two or three hours, cold water would have checked the circulation as well as animation at once and forever.

Such are my views, gained from actual experience. J. B. GARBER.

Columbia, Pa., Aug., 1854.

Effect of Occupation on Health.

It has oftentimes been asserted that those exposed to severe labor in the open atmosphere, were the least subject to sickness. This has been proven a fallacy by Mr. Finlaison, Actuary of the National Debt Office in London. Of persons engaged at heavy labor in out door exposure, the per centage of sickness in the year is 28·05. Of those engaged at heavy labor in-doors, such as blacksmiths, &c., the per centage of sickness is 26·54—not much difference to be sure; but of those engaged at light occupations in-doors and out, the per centage of sickness is only 20·80,—21·58. For every three cases of sickness in those engaged at light labor, there are four cases among those whose lot is heavy labor. The mortality, however, is greatest among those engaged in light toil, and in door labor is less favorable to longevity, than laboring in the open atmosphere. It is established clearly, however, Mr. Finlaison says, "that the quantum of sickness annually falling to the lot of man, is in direct proportion to demands on his muscular power." How true this makes the assertion, "Every inventor who abridges labor and relieves man from the drudgery of severe toil, is a benefactor of his race." There were many who looked upon labor-saving machines as great evils, because they supplanted the hand toil of many operatives. We have helped to cure the laboring and toiling classes from entertaining such absurd notions. A more enlightened spirit is now abroad, for all experience proves that labor-saving machines do not destroy the occupations of men, but merely change them. Man is relieved from drudgery by the iron sinews of the machine, and his own are left to move more lightly and free in pursuing avocations demanding less physical but more mental and noble exertion.

Legislation, Gloves, and the Ladies.

Since we published the account of the influence of white kids, and that of certain ladies, at the fine suppers given to elevate the feelings of M. C's., in relation to the Colt patent, a number of our cotemporaries have been induced to view the matter in a rather unfavorable light, respecting the female lobby members of Congress. This is all wrong; those ladies belong to the "Women's Rights" party, and being deprived of a voice on the floor of Congress, have only resorted to this kind of tactics in insuring a voice in the legislation of our country. What is the remedy? Give them seats in Congress, and then the gloves can be given direct to the right persons, without any second handed work about it.

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New Inventions.

Roving Tubes.

Moses Sargent, Jr., of Lake Village, N. H., has taken measures to secure a patent for an improvement in roving tubes, which cannot fail to engage the attention of woolen manufacturers. It combines economy and simplicity in construction, and efficiency in operation, accomplishing with facility, work that it is almost impossible to accomplish with the tubes now in use. It also does away entirely with the necessity of stopping the machine to mend broken roving. The invention has been thoroughly tested by Mr. Sargent, who is a practical manufacturer.

Machine for Cutting Irregular Forms.

In our list of patents last week, there was one granted to O. L. Reynolds, of Dover, N. H., respecting which more should be known than the mere claim. The machine is designed for cutting out a variety of articles, such as lasts, spokes of wheels, &c. The cutters are placed on a revolving horizontal wheel, and a number of carriages are employed, with a pattern on each, by which various articles are turned out at one continuous operation of the machine. We have been assured that this is an excellent and ingenious machine, entirely distinct and separate from Blanchard's, of famous reputation.

New Breech-Loading Cannon.

There can be no doubt but breech-loading fire arms are more advantageous for rapid shooting than those which are loaded from the muzzle. The great difficulty in constructing the breech-loaders has been in securing them from *windage*, and making them simple and durable in the movable breech parts, so as to fortify them against derangement in the hour when most required, that of danger. Owing to the great attention paid to breech-loading small arms during the past five years, and the many patents secured for improvements on them, it is believed that they have now been rendered faultless. To secure the same advantages to heavy arms, such as cannon of every calibre, much attention has also been devoted of late.

Among the number of those who have exercised their inventive faculties in this field, is Abner M. Newton of Richmond, Wayne County, Indiana, who has taken measures to secure the same. There is an arrangement whereby the charge can never explode until the loaded breech has entered the chamber. By the sliding movement of the breech, both the cocking and setting free of the hammer to ignite the charge, are effected. The loading breech itself is of an improved construction, and is retained in its place for discharging by a pair of peculiarly formed clamps, which are managed with great ease and facility. Part of the arrangements in connection with this breech-loading cannon can be applied to muskets and rifles. In a short time we shall have fire arms doing all the fighting themselves, the soldiers only looking on.

Condenser for Wool Carding Machines.

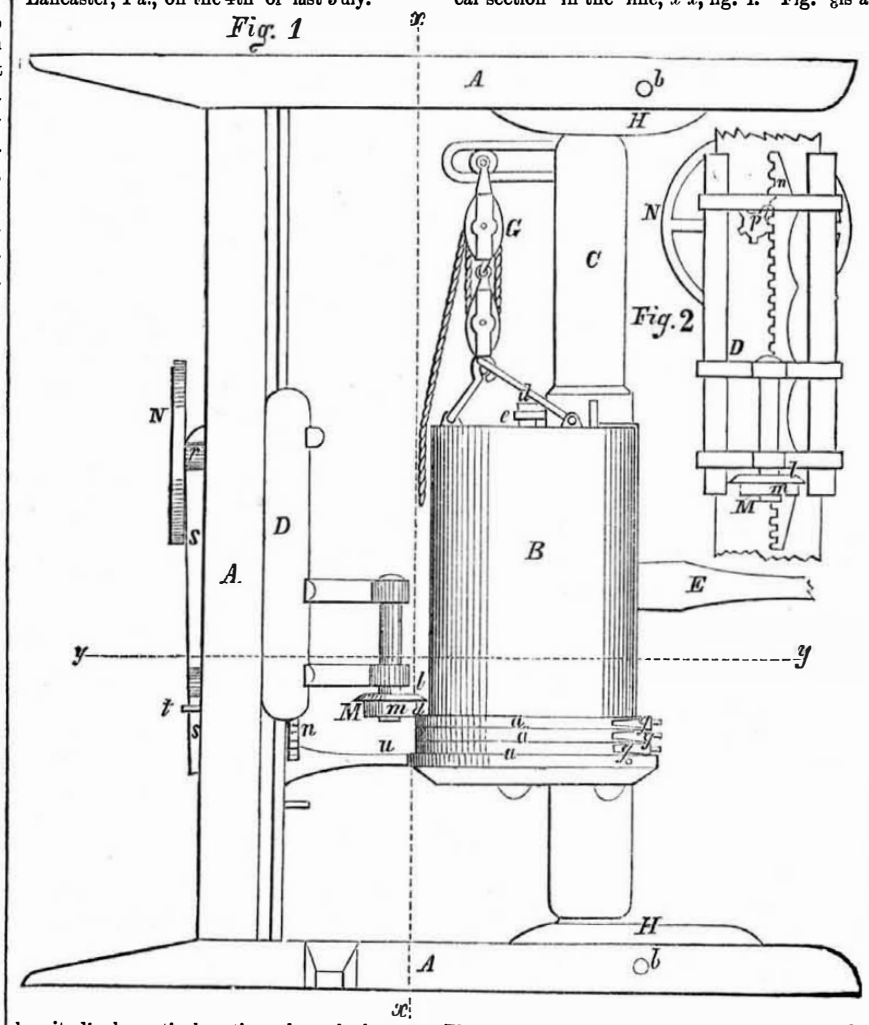
William H. Howard, of the city of Philadelphia, has taken measures to secure a patent for improvements in the above named class of machines, which embrace a certain means of keeping several slivers separate, and effectually preventing long staples becoming entangled when being conducted from the doffer to the condensing apparatus. The spools on which the slivers are wound, are so placed in guides that the full spools can be removed and the empty ones substituted without waste of material, or interruption of the work. The doffer roller is divided into sections by spaces, and the lower roll is divided into corresponding sections by disks, so that the long staple of several slivers is conducted forward without ever becoming entangled. The superior results of this machine are obtained by improved mechanical devices, constructed and arranged for the specific purposes mentioned, but would require engravings to render them more intelligible.

MACHINERY FOR BENDING FELLIES.

The annexed engravings represent an improvement in machinery for bending fellies, for which a patent was granted to Thomas Cox, of Lancaster, Pa., on the 4th of last July.

Figure 1 is a side elevation of the machine, in the position which it assumes when a felly is about to be bent. Fig. 2 is a transverse vertical section in the line, $x\ x$, fig. 1. Fig. 3 is a longitudinal vertical section through the center, and fig. 4 is a horizontal section of the machine in the line $y\ y$, fig. 1, and in the position when the bending of a felly is nearly completed.

Fig. 1



The same letters indicate similar parts on all the figures. The nature of the invention consists, first in the combination of the vibrating felly mold, B, with the flanged bending wheel, M, arranged and operating as hereinafter described.

Fig. 3

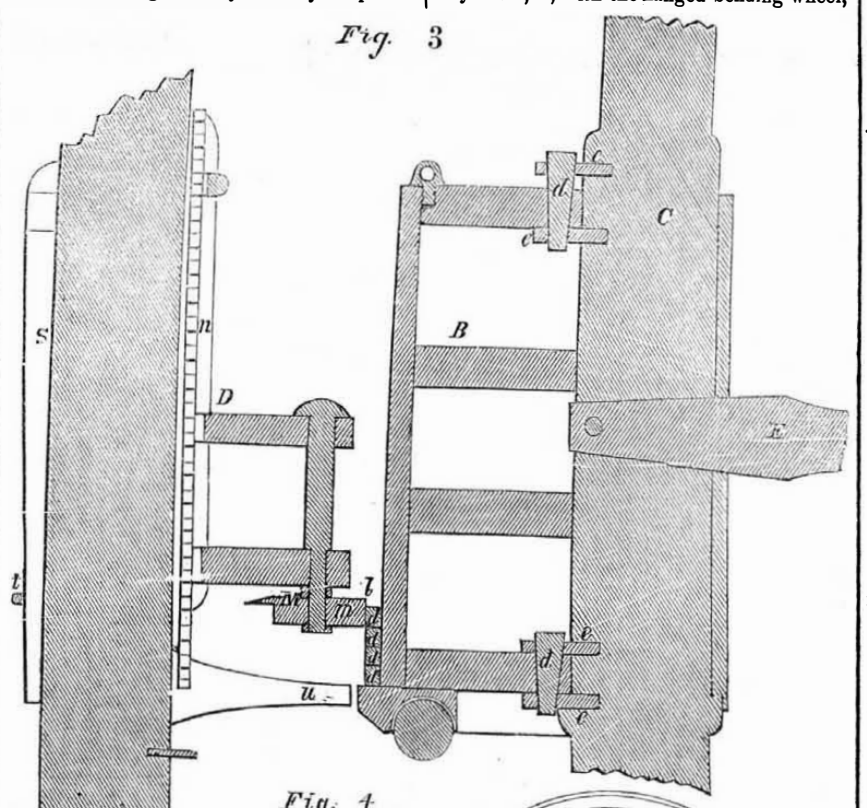
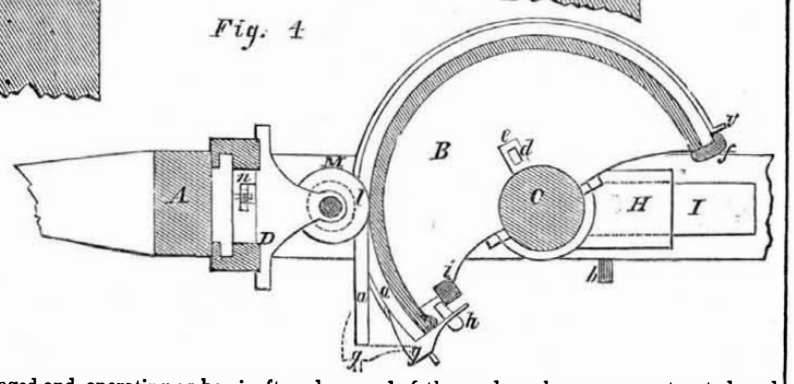


Fig. 4



Secondly, in the manner of perfectly bending the last end of each felly and securing it when completely bent upon the mold, viz., by the combined action of the bending wheel, M, and of the wedge clamp, g, constructed and operating as will be described.

A is the frame, consisting essentially of bottom and top horizontal beams connected by a vertical post. In the two horizontal beams are slots for the reception of sliding plumber blocks, one on each side, which bear the shaft, C, of the felly mold, B. The plumber blocks are respectively provided with corresponding series of holes and through which pins, b, pass and also through holes in the frame, whereby the position of the shaft, may be changed so as to bring different sizes of molds always at the proper distance from the bending wheel, M.—The felly mold, B, is composed of a cylindrical case built upon suitable frame-work and extending in circumference as far as necessary to bend any portion of the whole felly desired.—Its diameter depends upon the size of wheel to be made, and its length on the thickness and number of fellies to be bent at one time. It is arranged so as to be readily attached to and removed from the shaft, C, by any convenient means, such as the keys, $d\ d$, passing through slots in the mold frame and through ears, $e\ e$, which project from said shaft, as represented in the engravings. A tackle, G, may be employed for raising and lowering the felly mold to and from its place on the shaft, as shown in fig. 1. It is operated by means of a lever, E. inserted in the shaft, C, and its movements in both directions are limited by projections, $v\ v$, upon its striking a stop, u, on the frame, A.

The bending wheel, M, consists of a cylindrical portion, m, of suitable thickness and diameter, and of a flange, l, projecting from the upper edge. This bending wheel is mounted on a vertical shaft, in a strong carriage, D, which slides in ways vertically upon the upright post of the frame, A, as shown. Said carriage is provided with a vertical rack, n, which plays into a pinion, p, fig. 2, on whose shaft, r, is secured a crank or hand-wheel, N, for the purpose of raising or lowering the bending wheel when and where desired. In order to retain said bending wheel in any position, a vibratory tightening lever, S, is arranged upon the back of the frame post, so that its upper end may be caused to bear against and bind the shaft, r, by pressing against its lower end, which can be conveniently done by means of a loop, t, and key to wedge it in.

To bend a felly, the mold, B, is brought round so that its starting edge may be opposite the bending wheel, M, and one end of the prepared material is inserted and held in a groove, f, in the edge of the mold. The bending wheel is then lowered till its cylindrical portion, m, bears against the side, and its flange, l, rests upon the top of the piece; and the carriage, D, is confined in that position by tightening the lever, S, if its own weight is not sufficient for the purpose. The mold is then turned so as to bring every part of its periphery successively opposite to the bending wheel, which consequently bends the felly piece closely upon said mold, in the manner indicated in fig. 4, where most of the felly piece is bent; and at the same time the flange, l, holds the felly down in its proper place. Then just before the bending wheel reaches the last end of the felly, a clamp, g, which consists essentially of a shank with a slot in it near one end for the insertion of a key, h, and a wedge-shaped prong projecting at right angles from the other end thereof, is held by the hand against the unbent end of the felly in the position shown in fig. 4. While thus situated its prong is pinched between the bending wheel, M, and the felly, and thus powerfully wedges the end of the felly against the mold and bends it perfectly thereon quite to the end. Finally, a key, h, is driven through the clamp between the case of the mold and a vertical bar, i, situated a little distance therefrom inside, and thereby secures the felly permanently upon the mold, which is then brought back to the first position and another felly bent upon it in the same manner as before. And this operation is repeated until the mold is filled with bent fellies, $a\ a\ a$, &c. It is then removed from the machine and laid aside till the fellies become perfectly set; other molds are substituted and filled in the same way.

This improvement in felly bending machinery speaks for itself. Fellies that are formed in this manner are allowed to be far superior in strength to those which are cut across the grain of the wood.

More information may be obtained by letter, addressed to the patentee, at Lancaster, Pa.

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Scientific American.

NEW YORK, SEPTEMBER 2, 1854.

Subscribers, be sure and get the First Number.

A new volume of the "Scientific American" will commence on the 16th of September, and we hope our readers will be very prompt in renewing their subscriptions. Many delay until the very last moment, and some until the volume has progressed several weeks, and then call for the back numbers without being able to procure them, much to their disappointment.

We always regret to find an old patron of the paper disappointed in this respect; we have noticed it, however, many times, the result of his own neglect. The edition commencing Volume Nine was increased several thousands, and before ten numbers were issued it was exhausted. We intend to start this volume with a number adequate to meet the wants of all, and shall base our calculations upon the number of subscribers who renew their subscription before the volume fairly begins. Those who are engaged in forming clubs will bear in mind that our list of cash premiums is much larger than last year, offering excellent inducements to any who may feel desirous of canvassing for names. Send in your subscriptions early if you wish to secure the numbers from the commencement of the volume, and advise all your friends to do the same.

Another New Rule in the Patent Office.

U. S. Patent Office, Aug. 12, 1854.

Previous to the second examination of any case which has been once rejected, the 7th section of the act of 1836 requires the applicant to renew in substance the oath originally filed with his specification. After thus applying for a second examination, no withdrawal of any part of the fee paid is authorized.

The previous practice of the office having on a recent occasion been seriously questioned, the law has been carefully considered, and there being no reasonable doubt of its having been heretofore departed from in this respect, the change above intimated seems unavoidable.

But the applicant, without renewing his oath or forfeiting his right of withdrawal, may point out any mistake or oversight on the part of the office, which will be cheerfully corrected.

To render this change as gradual and as little inconvenient as possible, this rule will only be held applicable to cases wherein the first rejection shall be made after the promulgation of the foregoing order.

C. MASON,
Comr. Patents.

[The above new rule relates to a question of law, and is very different from a simple form of conducting Patent Office business; it therefore deserves more than common attention from all inventors. Hitherto, the practice of the Patent Office, in re-examining rejected cases, has been very liberal, and this may have led many to give the office more trouble than they should; but on that account, those who have conducted business with the Patent Office in a correct and honorable manner, should not be made to suffer. It is our opinion that the new rule is contrary to the plain letter of the law, and if an appeal were taken from the decision made upon it, we believe it would be decided against the Patent Office. The section referred to in the Commissioner's letter, says, "In every such case if the applicant elect to withdraw his application, relinquishing his claim to the model, he shall be entitled to receive back twenty dollars." The re-examination of any application is a question of privilege with the Patent Office, and even if it should examine an application fifty times, the applicant, if he withdraw his application, is entitled to receive back twenty dollars. There is no authority, not even a hint, in the whole patent code for the Patent Office charging twenty dollars for an examining fee; this is the key to the meaning of the law in judging of the new rule, which is claimed to be the law. The fact is, the law is positive against it, as it makes special provision for the fee of ten dollars only, for examining an application for a patent, and no provision whatever is made for charging for a re-examination. This is our opinion of the law, and we entertain no small amount of confidence in its correctness.

Car Ventilation.

Traveling in the ordinary rail cars at this season, under a burning heat, and when all nature is parched up, is one of the greatest nuisances imaginable. No one pretends to travel merely for the pleasure of it, consequently passengers rush from the hot and uncomfortable cars, when they stop, like half-smothered sheep through a gap in a wall.—After a half-day's ride on a railroad, one feels like submitting to the usages of a Turkish bath as the only hope for future cleanliness. If there were any excuse for such treatment of passengers, we might feel willing to submit to it with perfect composure, but genius has supplied the remedy, and railroad companies are maltreating their patrons in not adopting it. We have special reference to Waterbury's improvement, which has been introduced upon the Naugatuck R. R., now under the able superintendence of W. D. Bishop, Esq, of Bridgeport, Conn.

This invention consists in inclosing the whole of a train of cars except at the ends, and taking in at the front a current of pure air, which circulates freely through all the cars, and passes out at the end of the rear one. On each side of the tender, air, free from dust, smoke, and sparks, is caught in a open-mouthed conduit, and conducted into one channel of less specific area, and directed at the front end into the train. This creates a current by the velocity of the train through the atmosphere, which freely circulates through the whole train while it is in motion. Between every pair of cars the usual space is inclosed in an elastic trunk formed of two sections—one for each car, which fit close against one another when the cars are coupled, so that the whole central way through a train of cars becomes a long continuous hall. Passengers pass in and out of each car at a side door near the end. It will thus be seen that safety as well as comfort is obtained by the use of this invention, as there is no danger of falling between the cars or from the platform. The whole train is thus converted into a box, into which neither dust, smoke, nor sparks can enter. When the train stops, the windows may be thrown open, so as to admit air when the main current is stopped; these are closed when the train begins to move. This plan of car ventilation is very simple; its merits consist in excluding those great draw-backs to comfortable railroad traveling in our country, viz.—dust, sparks, and smoke. We understand the New York and New Haven Railroad have purchased the right to use the invention for a reasonable sum, and that it will soon be applied on all their cars. We hope that every railroad in our country will adopt this invention or some other (if it can be obtained) equally efficient, for it is our opinion that railroads should now pay premiums to passengers, instead of exacting fares from them for spoiling their clothes and charging their lungs with dust, when they are necessitated to travel.

Spiritual Manifestations and Discoveries.

We live in a professedly civilized age; knowledge is increased, and the lights of science and philosophy are shed around the footsteps of high and low in all places. Yet with all our claims to superior enlightenment, that faculty of man and woman, *curiosity*, is made the subject of as gross deception now, as it was when kings kept astrologers and soothsayers to direct them when to go up to battle, to make new laws, and to read their dreams. It is not in the sequestered outskirts of civilization that imposture stalks and plans to devour its victims, and to deceive the simple. No, in the midst of our crowded cities, and in our most public marts, the wily deceiver spins his thread and weaves his web. In traveling up Broadway, the great luminary of New York streets, you can see in one place the words inscribed in bold letters, "Spiritual Manifestations conducted here by a Medium, entrance 25 cents." A few doors further on another sign tells you that table tippings and rappings are manifestations and communications of spirits with another medium—a female. (It is somewhat singular that nearly all these mediums are of the gentler sex.) Now as we have always had an idea that a spiritual existence was one of a higher state of intelligence, we cannot but conceive that such spirits as those which are said to manifest themselves here, have a very ignorant and poor opinion of their good names, thus to be rapping on and tipping over tables for 25 cents per head.

The most sensible thing that ever we heard of one of these spirits doing was that of Benj. Franklin's inspiring a medium to construct a new shingle machine. As chronicled by a spiritual paper it was said "to work to a charm, and that measures had been taken to secure a patent." Now the last part of the account of this machine was something which the ignorant medium should rather have consulted us about than his exhibitors Every inventor who applies for a patent must make oath that he is the original and first inventor: now as Ben. Franklin's spirit communicated the plan of making that shingle machine, we think it will be a pretty hard job for the medium to make oath that *he* is the original and first inventor.

Great Place for Steamships.

The last number of the London "Artisan," presents three long columns containing the lists of the number of steamships and sailing vessels which have been built and are now building on the river Clyde, in Scotland, since March, 1853. In adding up the columns of figures, we find the total number of vessels to be 265, of which 87 were sailing vessels, and all the rest (178) steamers. Of this large number only 31 are built of wood, all the rest (234) are of iron. Of the steamers, only 47 were built with paddle wheels, 131 being screw propellers. The total horse power of the engines, as given, amounts to 26,395. This we know is far below the mark, as we perceive that one wood-built paddle steamer by Robert Napier, of 3600 tuns burthen, is set down with 1000 horse power engines, this can mean only one of its engines. Another by Wingate & Co. of 1000 tuns burthen, is set down at 200 horse power, which can only be for one engine. In the list as published by the "Artisan," only the horse power of one engine in a vessel, we conceive, is given, and we are thus led to infer that the total horse power of the engines for these steamers, is nearer 40,000 than 26,000. The total tunnage of all these vessels amounts to 166,804 tuns or 166,804÷265=629 tuns for each of the two hundred and sixty-five vessels. The river Clyde, or that part of it on which these vessels have been or are building, is in length twenty miles—from Greenock to Glasgow. We had no idea that in any place in this world, embracing such a small extent of territory, so many vessels were built, especially steamers. That country appears to be the steamship shop of the world. These vessels have been built for parties in almost every nation under the sun—Ireland, England, Australia, Sicily, France, Egypt, &c. The whole country contains only 2,600,000 inhabitants, and these vessels were built or are building in only one district—but that by far the most important of it.

Government Steamers—The "San Jacinto."

We hope the four new government steam frigates which are to be built, according to the bill passed at the last session of Congress, will not make us ashamed of our country with respect to the way things have hitherto been managed in the Navy Department. Our readers will remember our famous steam frigate "San Jacinto" for its desperate performances have been described more than once in our columns; we learn than this famous steamer has made another trip after her late overhauling and thorough repairs in machinery, and with such success that it had to put into Boston crippled. Her bedplate was broken, and, as a consequence, her machinery may have to be taken out, in order to get in a new one. If we are not much mistaken, this steam frigate has already had two new sets of machinery, and she is but yet in her trial trips, having done no service worth naming. Is not this a shame? It is. Engineers of the Navy, take care of the new steam frigates. Your reputation is at stake in their construction. You have much to lose if they prove unsuccessful.

Reaping and Mowing Machines.

In No. 1 of the next Volume of the "Scientific American," we shall commence a series of articles upon reaping and mowing machines. It is our intention to make it a subject of great interest to our readers, and to accomplish this we shall publish illustrations of as many improvements in this branch of the arts as we can possibly collect. We have already collected much valuable matter, and with a view to a complete elaboration of this subject we made a call, some time since, upon all patentees of reaping and mowing machines, to send us their Letters Patent and we would publish their machines free of expense to them. No patentee interested in this class of improvement should delay sending us his Letters Patent to enable us in bringing his invention before the numerous readers of the "Scientific American." It will certainly be for his interest to do so, and we shall regard it as a great favor. Patents can be forwarded at our expense, either by mail or express, and as soon as we get through with them they will be promptly returned.

Our Prizes.

We hope our readers will remember the prizes we have offered; they are free to all, and may be of no small benefit to those who obtain them. Now is the time to begin laboring. Mechanics can canvass for subscribers during spare moments at meal hours, or for an hour or two in the evening. Among shopmates and acquaintances such extra efforts are worth putting forth. It is not every day that such prizes are offered, and for which any person can enter as a candidate.

Photography.

The London "Mechanics Magazine" tells of two photographs which were recently exhibited at the Polytechnic Institution of that city, which exemplified, in a striking manner, recent improvements which have been made in photography. One picture was a portrait, the full size of life, and the other was a copy of the front sheet of the "Times," on a surface of two to three inches. Both pictures were very perfect; the small one from its distinct and clear lines, could be read without the use of a magnifying glass. In this city, at No. 349 Broadway, (Gurney's) there are on exhibition a number of life size photographic pictures, which we are certain, cannot be surpassed by those in London. The figures look out from their frames, as if they were living and breathing before you. The art really appears to have arrived at such perfection as to supersede the occupation of the portrait painter altogether. Who a few years ago, would not have been considered beside himself if he had asserted that in 1854, artists would be using the sun for a pencil, to perpetuate on the canvas the likenesses of the fair, the grave, and gay, but so it is.—We live in an age of wonderful achievements in science and art.

Battle, murder, sudden death, dry weather, and tightness in the money market, seem to be the ruling features of the day.

$570 IN PRIZES

The Publishers of the "Scientific American" offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

$100 will be given for the largest list,

$75 for the 2nd.	**$35 for the 8th,**
65 for the 3rd,	**30 for the 9th,**
55 for the 4th,	**25 for the 10th,**
50 for the 5th,	**20 for the 11th,**
45 for the 6th,	**15 for the 12th,**
40 for the 7th,	**10 for the 13th,**

and $5 for the 14th.

The cash will be paid to the order of each successful competitor; and the name, residence and number of Subscribers sent by each will be published in the "Scientific American," in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new prospectus on the last page.

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[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING AUGUST 22, 1854.

CENTRIFUGAL PUMP—W. D. Andrews, of New York City: I claim the construction of the pump, as described, viz, having a hub, in the shape of the base of a cone inverted, with arms attached to its periphery, of a gradually decreasing width as they approach its base, placed within a shell corresponding in shape to the outer circumference of the arms, and having induction passages of a spiral form gradually decreasing in pitch to their point of delivery and eduction passages, of a spiral form, of a gradually increasing pitch, until they attain a straight line; by which construction the water is made to pass without sudden change of direction or eddies, in an unbroken volume through the pump.

And I do not limit myself to the precise mechanical construction, as shown, but may modify the different parts, only retaining the same general combination.

HOT-AIR FURNACES—N. A. Boynton, of New York City: I claim, first, the arrangement and construction of the dome and heating ring surrounding the same, combined by a series of pipes opening into the base of the dome, and carrying the smoke up over the same, as specified.

I also claim the construction and arrangement of the smoke pipes, so as to prevent the lodgment of dirt therein, and precipitate the same into the fire chamber, thereby preventing the clogging of said pipes.

I also claim the puppet valve cover, arranged and combined with the dome of the furnace, by which I insure a stopper at that point, not liable to the derangement of ordinary valves used for similar purposes.

ROTARY ENGINES—R. C. Bristol, of China, Mich.: I claim, first, the resting of the outer cylinder by lugs upon a convex bearing, with a plate interposed and made adjustable by set screws, or by wedges, for the purpose of adjusting the outer cylinder to any and all possible variations of the shaft and inner cylinder, as described.

I also claim driving out the slides by steam acting under pistons at each end of them, two being drawn out in equilibrio, while the other two are being acted against to propel the engine, as described.

I also claim using a cock or valve in the exhaust pipe to be closed before starting the engine, for the purpose of filling the engine with steam, and causing the pistons to force out the slides, which fall back upon stopping the engine, as described.

I also claim the metal rings upon the outer head, fitted over elastic packing, and forced up to the ends of the cylinder by springs, for providing for the expansion and contraction of the metals, as set forth.

I also claim, in combination with the rings, thus forced up, the use of set screws for restraining the action of such springs, and preventing the atmosphere from causing undue pressure or friction on said rings.

I also claim the peculiar method of making the joint in the abutment, so as to be adjustable and perfect on the face of the inner cylinder at the end of the abutment, and on the periphery of the inner heads, as described.

HOMINY MILLS—Benj. Bridendolph, of Clear Spring, Md.: I claim the compound spiral hulling shaft constructed as described, and operating in connection with a roughened concave for hulling and breaking corn, as specified.

STRAW CUTTERS—A. B. Earle, of Franklin, N. Y.: I claim the arrangement of a vibrating knife and recoil spring, as set forth.

I also claim the arrangement of a chopping knife on vibrating arms, fitted on each side with a handle, in such a manner that the force of the blows of the knife may be varied in proportion to the quantity of straw to be cut, and by which the operator may work on either side of the machine at pleasure.

ARRANGEMENT OF THE STEAM ENGINE—W. M. Ellis, of Washington, D. C.: I claim the arrangement of the annular cylinder and piston between the crank and crosshead, and uniting the two latter by a connecting rod passing through the space within the two former, as set forth.

STOP AND WASTE COCK—W. Z. Hatcher, of Philadelphia, Pa.: I do not claim making a supply way in the barrel of the cock. Nor do I claim the outlet waste hole, the waste pipe, nor the through ways.

But I claim making the waste way in the barrel of the cock so as to convey the water required to be wasted, from the pipe to the through way in the plug, that it may pass through the same to the outlet hole and pipe on the opposite side of the barrel, as described, and so that the plug may be turned in either direction for the purpose: and the notch or extra hole in the plug, and the check pin and stops heretofore used may be dispensed with, as described.

PORTABLE BUREAUS—Levi Haywood, J. L. Ross, and J. K. Otis, of Boston, Mass.: We claim forming in a bureau or case of drawers, which is susceptible of dismemberment, an independent frame or case which, when the parts are disjointed, and back of the bureau attached to it serves as a box or case to receive the front, back, and end pieces of each drawer, the pieces which compose each drawer being packed in the same compartment of this independent frame in which the said drawer slides when put together.

COATING TELEGRAPH WIRES—J. B. Hyde, of New York City: I do not claim broadly the coating of wires by drawing them through a vessel having holes on opposite sides.

But I claim the employment of the molding kettle, with or without the melting kettle, provided and combined with an aperture covered with a disk of india rubber or its equivalent, having a hole or puncture in the center, which admits the wire and prevents the escape of the contained composition, and with the nozzle or die for determining the thickness of compound to be put on the wire, as specified.

I also claim the use of the cone (which determines the thickness of the coating) in such manner as that the outer end or nozzle thereof, shall, when in use, terminate in and be covered by water, so that the covered wire shall emerge from the cone directly into or while the latter is in the water, through which the wire will then pass, as described, for cooling the composition.

And finally, I do dot limit the use of the apparatus for coating telegraph wires.

ACTUATING ENGINES BY BI SULPHURET OF CARBON—Bernard Hughes, of Rochester, N. Y.: I claim the application of bi-sulphuret of carbon to any convenient form of the steam engine, as a motive power, as described, when the vapor of said substance, after it has passed through the cylinder, is condensed by any known means of producing condensation in a suitable reservoir, and preserved for the future supply of the boiler, as described.

KNITTING MACHINES—George Jackson, of Cohoes, N. Y.: I claim the arrangement and combinations of the pressers and sinkers in the frame, as described, whereby the pressers and sinkers move together, and can be adjusted at such distance apart as may be requisite to graduate the size of the stitches, as required.

I also claim the arrangement of the cams which are attached to the cam wheels and on one common shaft, to produce the relative movements of the pressers, the sinkers, the needles, and the thread carrier bar, with the carriers, in combination and co operation with the movement of the face cam, which being revolved by the movement of the shaft through the spur gear wheels, produces the relative movements of the thread carriers to the right and left, and under and above the needles, and gives the peculiar character and figure of the fabric knit, so that by changing the surface of the face cam, and altering the relative proportions of the spur wheels to each other, the figure of the fabric may be altered indefinitely.

FLOATING DRAGS OR ANCHORS—Abel F. Lewis, of Shopiere, Wis.: I claim the arrangement described of the canting hawser, cable, and floating anchor, whereby a vessel may be held with more or less power, as circumstances require, when ground anchorage is unattainable.

BALANCING AND HOISTING SASHES—Robert Marquis, of Xenia, Ohio; I lay no claim to making both sashes mutually operative by means of the same cords which serve to elevate and lower said sashes.

I claim the single cord, which, passing around pulleys at the mid width of the sashes, is operated by a winch in the jamb, enabling the simultaneous or separate movement of each sash without liability of binding by the unequal expansion of different portions of the cord or impairing the strength of the sash by the removal of its substance, &c.

MANURE SPREADERS—Elbridge, Marshall, of Clinton, N. J.: I claim the employment of the vibrating brush for the purposes set forth.

GRAIN MILLS—Henry Mellish, of Walpole, N. H.: I claim the arrangement of the ring saws, as set apart by the washers on the bolts, with the cracker rest enclosed by them, in combination with the adjustable case, or its equivalent, for the purpose of cracking ears of corn, and also shelled grain, that it may be the more readily received between the burr, and the grinding surface of the adjustable case, and for the further purpose by the oblique direction of the teeth on the outer edges of the ring saws, and that of the teeth on the inner surface of the adjustable case of forcing the cracked grain into the space between the periphery of the burr, and the grinding surface of the adjustable case.

I also claim the arrangement of the burr, constructed as described, in combination with the finishing plate and the adjustable case, or its equivalent, operating as the burr does, conjointly with the ring saws, or inside the adjustable case, and the toothed disk of the finishing plate, against the front surface of the adjustable case, for the purpose of further grinding and giving the required degree of fineness to the meal as it passes between them, the whole being arranged, combined, and operating conjointly as described.

DIAPHRAGM PUMP—J. A. Pease, of New York City: I claim the elastic diaphragm with the metallic or wooden cylinder, in combination with the air chamber, for the purposes specified.

WOOD GAS GENERATORS—W. D. Porter, of New York City: I claim the construction of a gas apparatus or still, consisting of a metallic or other cylinder, the cones, diaphragm plate, and exit pipe, as described.

FOLDING UMBRELLAS.—Henry Richardson, Sheldon Morris, Jr., and B. C. Perry, of Litchfield, Conn.: We claim, first, the combination of the spring and its hook or catch, with the hinge, the said spring being secured to one part of the hinge or rib, and the hook or catch taking into a notch in the other part of the hinge or rib; when the two parts of the rib are in line, for the purpose of making the joint rigid, as set forth. We claim that said improved combination is much more easily made, and more efficient in its operation: also, that it is much cheaper of construction, both in material and labor, and further, that it is much nearer in its finish.

Second, attaching the several joints or parts of the stick together, by means of a link which is connected to the end of the right-handed screw, and has a ring, or equivalent, fitting in a hollow part behind or within the nut, which prevents its passing through the nut, but which at the same time allows the screw to turn freely within the nut, as described.

MANUFACTURING DOOR KNOBS—Artemas Rogers, of Painesville, Ohio: I claim the instrument described, or its equivalent, by the use of which I am enabled, with one and the same instrument in continuous use, to form the screw threads or other impressions within the socket of a door knob, remove the knob from the mold to the polishing furnace, manipulate it during the fire polishing, and finally deposit it in the annealing kiln, as set forth.

PAVEMENT WASHER, HOSE HYDRANT, AND HITCHING POST—C. M. Alburger, of Philadelphia, Pa.: I do not claim a pavement washer and hose hydrant independent of any peculiarities in their construction and combination.

But I claim, first, making a double waste cock by cutting the two waste notches, or their equivalents, in the plug of the cock, so that either notch may be put in communication with the usual waste holes in the barrel, by turning the plug in either direction, as described, when the said double waste cock is used in combination with a pavement washer, hose hydrant, or other hydraulic apparatus requiring the water in the outlet pipe above to waste in the ground below, when the reservoir pressure is shut off by turning the plug of the cock.

Second, I claim the general arrangement and combination of a pavement washer, hose hydrant, and hitching post, for the purpose described.

TWO-PLY CARPETS—Thos. Crossley, of Boston, Mass. Ante-dated Feb. 22, 1854: I do not claim the manufacture of carpets composed of different fibrous materials, in which the whole or nearly all of one fiber is shown on one side of the carpet, and all or nearly all of the other fiber on the other side of the carpet, as this has been done in pile carpets and other fabrics.

But I claim, as a new article of manufacture, a two-ply ingrain carpet, having the lower ply composed entirely of linen or cotton and the upper ply of wool, when united as described, for the purpose of producing a durable and economical carpet, to be subsequently printed upon one side, as described.

DAGUERREOTYPE PLATE HOLDER—Joseph Hill, of Skaneateles, N. Y.: I claim the application of the inward pressure by means of the springs, by their force retaining the daguerreotype plates to the block by the contact of the daguerreotype plates with the plates on the edges of the block.

It is understood that the daguerreotype plates may be confined by their ends as well as sides by the same principle: blocks may be made of any substance.

TUNING FORKS—J. C. Jinkins, of Bealsville, Ohio. I claim producing sounds of any required pitch with a single tuning fork by means of a movable cross bar inserted in the proper positions between the prongs of the fork, as set forth.

PREVENTING THE EXPLOSION OF BOILERS—A. W. Jones, of New York City: I am aware that contrivances have been made by which the valve which is raised by the pressure of steam is made to open another valve for its escape from the boiler, and I therefore do not claim to have been the first to have made such a discovery.

What I claim is the combination of the rock shaft with the slide valve, piston, spring valve, and steam chest, as described.

SAWING CLAPBOARDS, &c.—D F. Mellen, of Wentworth, N. H.: I do not claim two saws operating simultaneously upon opposite sides of the same piece of lumber.

But I claim the arrangement of devices, as described, by which the distance between the saws is varied to meet the varying thickness of the logs to be sawed, and the saws when so adjusted are elevated and depressed together, as required.

I claim the method, as described, of feeding the log between each successive cut of the saws, that is to say, causing the feeding pawl, or the lever which carries it, to strike against a fixed stop, in combination with the yielding dog, as set forth.

I claim the method, as set forth, of raising and lowering the saws, when it is desired not to use them at the same time, but alternately, during the forward and backward motion of the log, the same being effected by the combination of the unlocking, shifting, and locking apparatus, in combination with the lever and chains, the whole operating as set forth.

SAW SET—Wm. O. Rust, of Great Falls, N. H.: I claim the rotary bender and its adjusting screw in their combination with the movable lever; I also claim the arrangement of the regulating back stop, on the stationary arm, so that it may be used in connection with the movable lever, and for the purpose as specified.

SECURING GLASSES IN LANTERNS—Hugh Sangster, of Buffalo, N. Y.: I claim the combination of the springs and the frame arranged and operating as set forth, not intending to claim the springs uncombined with the frame or some device equivalent thereto.

SEWING MACHINES—Edward Shaw, of East Abington, Mass.: I claim, first, the combination of the rack bar, C, with the bar, B, both curved in the same shape and forming a clamp capable of receiving a vibrating motion from the diamond-shaped teeth of the pinion, and constituting a clamp for sewing the seams of boot legs in the manner described.

Second, I claim feeding the clamp along and guiding it, so as to keep the leather to be sewed always in proper position with regard to the needle, and at the same distance from the same by means of the rack and gear with its diamond-shaped teeth and proper guides, as described.

CARPENTERS' GAUGE—Halcyon Skinner, and William Greenhalgh, of West Farms N. Y.: We claim the combination of the frame with the adjustable sliding bars, adjustable fences, and set screws in the manner herein described.

HARNESS SADDLE TREES—Robert Spencer, of Southport, Conn.: I do not claim constructing the frame and contel of a harness saddle tree in separate pieces, nor the insertion of leather between them.

But I claim as a new article of manufacture my improved harness saddle tree, constructed as described, of combined iron and leather (or the equivalent of leather) the iron serving the purpose of a skeleton, and giving it the proper rigidity, while by trimming the leather portions of the tree the exact conformation is attained.

CATAMENIAL SUPPORTER—Alfred A. Starr, of New York City: I claim the combination of the elastic springs in the manner and for the purposes set forth.

FASTENINGS OF PLOWS—David Swartz and Samuel Swartz, of Tonis Brook, Va.: We do not claim constructing the point and cutter in separate pieces so as to be attached and detached at pleasure.

But we claim constructing the mold board and land side with slots as described, and the point and cutter with the tongues or flanges to fit the said slots, so that the said point or cutter shall slide in horizontally or nearly so and form a fastening with the mold board and land side without the use of screws or bolts, as set forth.

HARNESS SADDLES—Robert Spencer, of New York City: I claim the described new article of manufacture, consisting of a properly shaped harness saddle seat, cast in one piece with the unfinished jockey-shaped side bars, the said seat requiring to be only smoothed and japanned to adapt it to use, and the said side bars requiring to be covered with patent leather or jockeys or skirts of sufficient thickness to make a smooth and harmonious finish with the japanned surface of the seat, as represented and described.

COUNTING MACHINE—Paul Stillman, of New York City: I claim the employment and arrangement of the clutches having a spring sideways, so as to catch into the face notches and the styles outside the count wheels by which they are operated to move a series of count wheels, in the manner and for the purpose set forth.

OVENS—Francis C. Treadwell, of New York City: I claim the use of the combination of the furnace, flues, and dampers, substantially as set forth, in combination with an endless band running through the oven, and over drums placed outside of it for the purpose of making a perpetual baking oven, as described.

TRACK CLEARERS TO GRASS HARVESTERS—A. Whiteley, of Springfield, Ohio: I claim the rolling cone moving on the axis and furnished with a joint clearer for the purpose of clearing a track in the cut grass.

CHEESE PRESSES—Philander Wilbor, of Milan, Ohio: I claim the combination of the two rack slides with the respective attachments of the cam and friction roller, by which means, in connection with the slides and accompanying racks, the press is operated in the manner set forth.

SEWING MACHINES—Melvin Shaw, (assignor to Melvin Shaw and Daniel G. Wheeler,) of East Abington, Mass.: I claim the combination of the sliding bar with the curved clamp and the rest, constructed and operating together in the manner as set forth, by which means as the work is fed through the machine, it is kept constantly up to the needle and the stitches are placed at a uniform and unvarying distance from the edges of the material without dependence upon the care or skill of the workman.

PLANING LUMBER—Solomon S. Gray, (assignor to S. S. Gray and S. A. Woods,) of South Boston, Mass: first, I claim the peculiar construction of cutter head described, the cutter head itself being made use of to turn and break the shaving in the manner of a double iron plane and being furthermore made concave for the purpose of facilitating this operation.

Second, I claim the clamp as described for the purpose of dogging the lumber to the bed of the machine, the body of the clamp being pivoted and forced up by the screw or its equivalent, the dogs being adjustable therein in the manner set forth.

Third, I claim the described method of securing the dog to the bed of the machine, by means of the teeth or cogs and the mortises in the side pieces, for the purpose set forth.

OPERATING DAMPERS AND FURNACES—Daniel Treadwell, of Cambridge Mass., (assignor to Herbert H. and Frederick H. Stimpson, of Boston, Mass:) I claim using the expansion of the stove or furnace for closing the damper through the medium of the devices described, or any other combination of similar devices.

FURNACES FOR MAKING WROUGHT IRON DIRECTLY FROM THE ORE—Thos. W. Harvey's (now deceased, late of New York City,) administrators, (assignors to the Harvey Steel and Iron Company:) I claim causing the deoxydating and desulphurating flames and gases generated in the furnace to act directly in contact with properly prepared ores of iron (and other metals) placed upon suitably arranged tables, while at the same time a high degree of heat is imparted to the under sides of said tables.

COG GEARING—James A. Bazin, of Canton, Mass., (assignor to Alfred B. Ely, of Boston, Mass:) I claim the described manner of manufacturing cog wheels, every alternate tooth being bent in opposite directions from the plane of the plate, as set forth.

TOOL REST FOR TURNING LATHES—M. H. Merriam, of Chelsea, and W. W. Nichols, of Boston, Mass., (assignors to W. W. Nichols & Co., of Boston, Mass:) We claim the combination of the elevating screw with the nut and tool post and slide, in which by turning the nut you can elevate the tool post and the elevating screw, at the same time the elevating screw is prevented from turning by the gibs, as described.

We also claim the groove in the slide, by which the tool post, elevating screw, and nut, are prevented from rising by pins or their equivalent, fitted into the nut and running in the groove when the nut is not turned, but when the nut is turned the tool post can be lowered.

We claim the gibs and the elevating screw as combined with and running in the channels of the slide by which a vertical movement of the elevating screw is produced and a rotary prevented as set forth.

TOOL FOR BORING RECESSES FOR CASTERS, &C.—Benj. F. Graves, (assignor to Wm. C. Knowlton,) of Boston, Mass.: I do not claim the combining the throat of a chisel, with the discharging chip groove of the twist auger, or making the latter to enter directly into the former, whereby its chips are not only discharged through the said throat but by the pressure exerted on them by the spiral form of the groove of the auger they are made to aid in the discharge of the other chips from the throat, and thereby prevent the choking of the chips in the throat.

But I claim the combination and arrangement of the twist auger, the two cutters or chisels and their throats, on the block, so as to operate together and simultaneously, and make a chamber or recess in a piece of wood of the form as specified.

Not meaning to claim a single cutter and a twist auger as applied to a shaft so as to merely bore two cylindrical receeses.

SEWING MACHINES—Sidney S. Turner, of Westboro', Mass., (assignor to Elmer Townsend, of Boston, Mass.:) I claim the arrangement of a hook or hook needle underneath and so as to work up through the feeding bar in combination with the arrangement of the presser above the feeding bar, and so as to press downwards towards it in the manner described, such enabling me to obtain an important advantage in operating by the single chain stitch sewing machine.

And I also claim in combination with the mechanism for giving the vertical movements to the needle, the slot, and the screw or pin, (or the mechanical equivalents therefor) for producing reciprocating semi rotative movements of the needle during the vertical movement of it, as described.

MACHINES FOR CASTING METALLIC EYES OR MAIL OF HEDDLES FOR LOOMS—Jacob Senneff, of Philadelphia, Pa.: I do not mean to confine myself rigidly to the precise arrangement of parts shown and described, as they may doubtless be varied without departing from the present improvements.

But I claim, first, the method described of casting the eyes or mails on the strands of yarn or other material, by inserting the yarns successively within a mold secured on a vibrating frame operated at the proper intervals of time by means of the eccentric cams, said mold being opened at times to disengage the mail therefrom and provided with a core for forming the eye in the mail, and capable of being withdrawn therefrom before the mold opens, in the manner and for the purpose set forth.

Second, I claim the manner of operating the core so as to enable it to be so withdrawn from the eye of the mail after the same is formed, and whilst it is firmly embraced within the mold by means of the springs and screws, operating as described.

Third, I claim the core carrier resting in a notch formed in the top of the spring, and having pins on its face, which pass through slots in the mold plates, and spring for moving the core horizontally from the stationary half of the mold and keeping it mid way between the mold plates, when they are opened by the lever and preventing it being thrown violently either way, as set forth.

Fourth, I claim the manner of operating the heddle frame holder, by means of the eccentric cams on the shaft capable of being moved longitudinally over the grooves in said shaft, right angled levers to which the heddle frame is secured and spiral springs for keeping the ends of the levers always in contact with the eccentric cams, and in combination therewith I claim the screw shaft and clamps, and the adjustable gearing at the ends of the screw and main driving shafts, the whole being constructed and operating as set forth.

ROLLING SHOULDERS ON AXLES—William Van Anden, of Poughkeepsie, N. Y.: I claim the arrangement of the cam rollers, having the reduced surfaces with the guide and feeding tube or box through the hollow space of which I am enabled to put in the blank bar of iron, and withdraw the finished axle without displacing the forming rollers, or cams, or feeding tube, or box, as set forth.

STEAM VALVE—Robert Ross, of Philadelphia, Pa.: I claim in steam valves the mode set forth of constructing the valve, the same consisting in the loose or detached valve and stem or guide, and combined with the hollow valve rod in the manner set forth.

RE-ISSUE.

BANK LOCKS—Augustus C. Harig, and David C. Story, of Louisville, Ky. Patented originally July 25, 1854: We claim connecting the series of male tumblers with the vibrating portion of the bolt in such a manner that all of said tumblers must vibrate with said portion of the bolt, and said portion of the bolt must vibrate with said series of tumblers, whilst any one of said tumblers may be moved endwise independently of said vibrating portion of the bolt, and vice versa, by which they are enabled to be operated in connection with a series of entirely independent stationary female tumblers, that can be adjusted in different positions, as set forth.

Second, we also claim the series of female tumblers when they are secured in such a manner to the lock case, that, while they admit of unlimited adjustment to suit the different positions into which any key can be made to throw the series of male tumblers, they are so arranged as to be independent of the longitudinal movements of said male tumblers, or the bolt which is combined with them, and consequently are perfectly protected from injury or disarrangement by said movements and also from any violence that may be exerted upon the bolt.

Third, in connection with the said series of male tumblers, and the vibrating portion of the bolt arranged and combined in such a manner that they must vibrate with each other, and can be moved lengthwise independently of each other, we also claim the fixed and strongly secured stud arranged in such a position that the bolt cannot be shot back until the vibrating portion thereof is brought up to the highest point allowed by the matching of the series of male tumblers, with which it is combined, with the series of female tumblers that are combined with the lock case, by which, when the bolt is shot out, both series of tumblers are perfectly protected from injury by any violence exerted upon the bolt, as set forth.

Fourth, we also claim the self-adjusting guard, arranged and operating in the usher in such a manner that the introduction of powder and picking instruments, into the lock through the key hole is effectually prevented, as set forth.

Fifth, we also claim the described arrangement of the inclined notch on the usher, with the dog and the bolt moving cam, by which the act of turning the usher to enable the key which it carries to operate, the tumblers will throw the dog into such a position as to prevent the said cam from being brought in contact with the vibrating portion of the bolt during the time said usher is being moved, by which the possibility of laterally feeling the positions of the tumblers, while the key, (or a substitute therefor,) is in moving contact with them, is entirely prevented, as set forth.

The Ohio State Fair.

The Fifth Annual Fair of the Ohio State Board of Agriculture, which is to be held at Newark, Ohio, commencing on the 19th of September, is to be a grand affair. We have received a list of the prizes offered, and a fine colored lithograph of the Fair grounds. As we have already noticed, Joseph E. Holmes, so well known as Superintendent of the Crystal Palace, is to be the superintendent, and the Ohio mechanics, we believe, will make a show worthy of their great State.

The grounds on which the fair is to be held was once an Indian fortification. It is enclosed in embankments made centuries ago. What a change in the destiny of races and nations.—What was Ohio one hundred years ago, and what was our whole country? Almost an unbroken wilderness. What a wave of emigrating conquest has spread over it in such a short time. It looks like a miracle. Those who talk of great periods of time being required to effect great changes in countries and peoples, have but to look to our country and sign themselves "mere *sciolists*."

An Old Printing House.

M. Barth, printer, of Breslau, (in Prussia,) celebrated last month, the 350th anniversary of the first book printed in his establishment. This book is a German legend of some rank, and appeared in 1504. M. Barth's printing office is the oldest in Europe, and has been for 350 years uninterruptedly in the hands of his ancestors and himself.

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TO CORRESPONDENTS.

L. D., of Albany.—You are mistaken respecting the reasons for placing the engraving on the back page. It was placed there as the best place. according to the description and size of the others. Our opinions of its merits are very favorable, and the position given it was really the best for that number.

A. G., of Mo.—We are well aware of the elastic nature of air, and took that into consideration, but that has nothing to do with the main point at issue, namely, will a certain amount of impressed force produce an infinite amount of it, as asserted by you? This cannot be done by your machine, neither with the use of air, nor any other medium. This is our deliberate opinion.

H. W. S., of Ohio.—Yours came after our article on the history of steam coaches. Send us the others and we will find room for them in due season.

J. B., of Va.—We are not acquainted with the prices charged by those who sell or put up lightning rods. We consider the rods safe that run on the comb of the house, and is joined to one rod, but the single rod should be thicker than any of the branches. The thicker the conductor the better.

A. B. G., of N. Y.—We have been told that steam, at the pressure of five atmospheres—seventy-five pounds—will dissolve bones, but we do not vouch for the correctness of this.

M. J. H., of Geo.—Your plan to prevent the alteration of Bank Bills is new to us. The reward you speak of was offered by the Boston Banks, and we have no more information respecting it than you can obtain from the advertisement to which you have referred.

J. B. G., of Pa.—Yours will meet with attention.

H. B. E., of Tenn.—The only work to which we can refer you on making gas is Parnell's. The price we do not know. It is contained in his "Applied Chemistry," and can be obtained of Messrs. Appleton, this city.

C. H., of Mass.—Your account of the method of producing large quantities of electricity to decompose water simply involves a continuous current. This is not new, and will fail to decompose water as economically as by chemical action.

E. A., of Pa.—You can procure steel rolling mills of Messrs. Blake & Johnson, of Waterbury, Ct. We saw some at the works of this Company, intended for the Philadelphia mint, and they were superior even to the best imported article: this is a strong testimonial to the genius of our mechanics.

N. N., of Ohio—Your ideas in regard to the construction of railways are quite novel to us, but we cannot endorse them without more knowledge of their practicability. It would be as well to make experiments to test them.

W. F., of Mass.—We have no faith in the success of your propeller, and think it cannot be made to operate.

P. & C., of London—We are attending to your matters, and will write you, if possible, by the first steamer which leaves here this month. Our paper is largely circulated amongst English manufacturers.

A. McK., of C. W.—We cannot advise you to get an iron bridge; put up a wooden one by all means. If you would steep your timber in a solution of alum and the sulphate of copper, it would be rendered nearly fireproof. We cannot tell what would be the cost of an iron bridge; your plan, as given, is very good.

H. K., of Mass.—Your plan of checking the use of fraudulent bank bills is very good. The difficulty is to get banks to adopt a good plan. A chemical fire alarm can easily be constructed; but the grand object is to prevent fires.

J. W. P., of Mich.—Your substitute for the common frog for railroad side tracks appears to be practicable and new, so far as we are able to judge from the sketch. You had better put it into use if you can and test it thoroughly.

G. W. M., of N. Y.—We have such a book as you speak of, and can refer you to I. M. Singer, of this city, as having a patent for such a machine.

J. S. P., of Cal.—Your idea of carrying off the cinders of a locomotive by means of a chimney curved backwards over the train, is not new. It was suggested to us some six years since.

T. S., of Ill.—A suction draught produced by a fan is not new, we have seen it in use.

S. P. B., of N. Y.—We are not in the habit of deciding questions of infringement, such as you ask.

C. E., of Ind.—There does not appear to be sufficient novelty in your boring machine to warrant an application for a patent. It is not uncommon to find boring machines operating in the same manner.

J. C., of Mass.—Your improvements in marine locomotives are neither new nor useful; essentially the same thing has been proposed before, and modifications of it have been patented. They are impracticable.

W. & N., of Ohio—There is nothing in your endless chain pump which we consider as possessing a patentable feature; you are advised not to attempt to secure it by patent, it would be money thrown away.

G. M. D., of Geo.—We do not know to what rope machine you refer; Slaughter & Perry, of Fredericksburg, Va., we think, are makers of cordage machinery.

J. B. B., of Pa.—A car ventilator substantially on the plan of yours, was introduced some two years since on an Eastern road, for some cause it has passed out of use. It is not as simple as Waterbury's, and is more liable to derangement, while its advantages are not equal to it. Mr. W.'s plan is noticed on another page.

C. J. H., of New York—You can dissolve the wool if you use potash or soda in the water, but we do not believe you can either dissolve it or hair at the temperature of two hundred and thirty.

Money received on account of Patent Office business for the week ending Saturday, Aug. 26:—

E. E. B., of N. Y., $400; T. S. W., of N. J., $30; S. B., of N. Y., $20; F. T. F., of Vt., $30; E. A. S., of Ill., $20; A. M., of Ind., $30; I. A. R., of N. Y., $15; J. L. Y., of La., $30; B. & M., of Mass., $25; H. B. P., of Ct., $25; J. B., of Mass., $30; A. S., of O., $30; S. P. S., of N. Y., $30; C. G. E., of N. Y., $30; J. M., of N. J., $10; W. H., of N. C., $25; J. F., of Pa., $10; T. & A., of N. H., $50; D. W. C., of Ct., $30; E. B. B., of N. Y., $25; H. L. R., of Mich., $25; C. M., of Mo., $30; O. S., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Aug. 26:—

B. & W., of Mass.; E. A. S., of Ill.; E. B. B., of N. Y.; H. L. R., of Mich.; W. H. E., of N. Y.; W. H., of N. C.; C. M., of Mo.

ADVERTISEMENTS.

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American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express, or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York

JOHN PARSHLEY, manufacturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., is now finishing a lot of iron planers to plane 8 5-12 feet long, 30 in. wide, and 26 in. high, having the down and angle feed in the cross head, the planers all of the best quality, and prices extremely low for the quality. Cuts with full particulars can be had by addressing as above, post-paid. 51 tf

LARGE POWER PLANER—Will plane 20 feet long, 3 feet 5 in. wide, and weighs over 6 tuns. Now ready for delivery, and will be sold lower by $300 than the same quality of machine can be bought anywhere else. Warranted good. Call and see, or address, (post-paid) C. POTTER, Jr., Westerly, R. I. 51 3*

PATENT SASH FASTENER—The subscriber will sell rights to make and sell his improved Sash Stopper and Fastener as follows:—License for any town of not over 5,000 inhabitants, and one dozen fasteners with directions, $5: for larger towns and cities or counties on liberal terms. Letters to be addressed (post-paid,) W. S. HADAWAY, Chiltonville, Mass. P. S.—See engravings of this invention in No. 51, Vol. 9, Sci. Am. 51 tf

JOHN PARSHLEY, Manufacturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., has for sale 1 locomotive lathe, which has not been used more than two months, all told, and is as good as new, its first cost was $1250; having come into present hands with a large lot of other tools, it is now offered for the small sum of $900 cash; weighs 9 tuns, head boring of the arbor is 12 in. diameter, swings 7 4-12 feet, has counter shaft and pullies. Cuts of the same can be had by addressing as above, post-paid. 51 3*

MECHANICAL ENGINEERING—CHARLES EHMAN & CO., Consulting Engineers and Designers, 333 Broadway, New York. Designs, Working Drawings, estimates and contracts for high or low pressure steam engines (Ehman's improved vertical engine) Boilers, Pumps, Presses, Saw and Grist Mills, Tools and Machinery of every description. Particular attention paid to making drawings and working plans for inventions and models, to the construction of patent machines, etc., etc, Arrangements made, and plans furnished for putting up and locating Engines, Boilers Shaftings, and all kinds of machinery in buildings, etc., etc. 51 8*

FOR GREASING MACHINERY—For all purposes of lubrication, "Metallic Oil" has many recommendations. Its tendency to remain on a smooth surface of metal, instead of running off or evaporating,—its property of resisting heat and keeping the bearings of machinery cool, and its freeness from "gum," are important considerations with engineers and machinists. A fair trial will convince any unprejudiced person that it is a very valuable substitute for sperm oil.

For sale in quantities to suit purchasers by
YOCKNEY & CO.,
Sole Manufacturers of Cumberland Brothers' Patent "Metallic Oil," Elizabethport, N. J., office 67 Exchange Place, N. Y. 45 12*

LATHES, BOLT CUTTERS, and Machinists Tools in general.—Just finishing, 6 Engine Lathes of superior construction, six feet shears, with screw gearing complete. Also two Bolt Cutters ready for delivery. Vesey Street Machine Shop, Nos. 58 and 60 Vesey street, N. Y. 1*

NEW PATENT FLOUR AND GRAIN MILL—Patented June 6th, 1854. The subscriber is finishing the following mills: 8 twenty inch, price $100; 6 thirty inch, $200; 3 three feet, $300; 2 four feet, $400, and will pay $1,000 for any other mill as durable, simple, economical of power, which will grind as much from one dressing, which will heat the flour and meal as little, and is as easily kept in order. Cuts sent to post-paid applications, and liberal commissions allowed to agents for cash orders. EDWARD HARRISON, New Haven, Conn., July 24th. sole owner of all interest in the patent right. 50 9*

DAMPER—Clark's Patent Regulator for Controling steam boiler fires, applicable to boilers of every size and situation. The benefits arising from the use of these Regulators have been attested by certificates of the strongest character from those having them in use. Please order a circular and you will be induced to try a Regulator, which we warrant in every instance to give perfect satisfaction. Please address
E. R. PRATT, Sec 'y
Clark's Patent Steam and Fire Regulator Co., 208 Broadway, N. Y. 1*

REYNOLD'S DIRECT ACTION and Re-Action Water Wheel—This is one of the most simple, cheap, and efficient Iron Water Wheels now in use.—For description, cuts, &c., apply to SAML. B. LEACH, Agent, 60 Beaver st. N. Y. 45 13*

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 2, 2 1-2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters, &c., they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS.
26eotf Machinery Agent, 12 Platt st. N. Y.

WM. MONTGOMERY & CO. Machinists, Yonkers, Westchester, Co., New York, manufacture all kinds of Machinery and Machinists' Tools—Bolt Cutters and Drilling Machines of different sizes constantly on hand; Steam Engines from 5 to 100 horse power made to order. Particular attention paid to jobbing in all its branches. Pullies and shafting furnished at short notice. Address as above, 47 3eow*

WANTED—In a large Woolen Mill in Philadelphia, an experienced Woolen Dyer of good character, perfectly sober, and married,—one who can dye to any shade of color that may be required, with certainty, and keep to a shade without varying, for any length of time. None others than such as above need trouble themselves to apply. Wages liberal. Address with particulars P. Q. R., No. 18 Chesnut street, Philadelphia. 50 2*

UNITED STATES PATENT OFFICE,
Washington, July 25, 1854.

ON THE PETITION of Robert L. and Francis B. Stevens, of Hoboken, New Jersey, praying for the extension of a patent granted to them on the 25th day of January, 1841, for an improvement in "working the steam valves of steam engines when the steam is cut off and allowed to act expansively," for seven years from the expiration of said patent, which takes place on the 25th day of January, 1855:

It is ordered that the said petition be heard at the Patent Office, on Monday, the 1st of January next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing: all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 22d of December; depositions and other papers relied upon as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.: Evening Argus, Philadelphia, Pa.: Scientific American, New York, and Post, Boston, Massachusetts, once a week for three successive weeks previous to the 1st day of January next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 50 3

UNITED STATES PATENT OFFICE,
Washington, August 21, 1854

ON THE PETITION of Milton D. Whipple, of Somerville, Mass., praying for the extension of a patent granted to him on the 28th day of October, 1840, for an improvement in "machine for cleaning wool from burs and other foreign matter, and also for ginning cotton," for seven years from the expiration of said patent, which takes place on the 28th day of October, 1854.

It is ordered that the said petition be heard at the Patent Office on Monday the 23rd of October next, at 12 o'clock. M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 13th of Oct.: depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Pa.; Scientific American, New York, and Post, Boston, Massachusetts once a week for three successive weeks previous to the 23rd day of Oct. next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 51 3

THE NEW BRICK MACHINE—Is now in daily operation at my yard, on Locust Point. If driven by steam, the clay is taken from the bank, passed through a pulverizer, (which removes the stone,) into the soak pit, where it receives the water, thence to the machine, which is geared to make six and a half revolutions per minute, turning out five bricks each time, or 1,750 bricks an hour, including contingencies. Nine men and six boys, all common laborers, take the clay from the pit and place the bricks on the floor. If there be no stone the pulverizer is not required; the clay is then thrown into the pit, mixed with water, and after remaining all night is ready for use. Machine, $425; Pulverizer, $75, with right to work it.
50 2* FRANCIS H. SMITH, Baltimore, Md.

JAMES BOGARDUS—Corner of Center and Duane streets, invites attention to the Cast Iron Buildings which he first introduced and patented. The mode of putting them together is the most simple and perfect of any yet known. Combining unequalled advantages of economy, strength, and durability, the most beautiful and graceful designs, which would be too costly in stone, can be produced in iron at a trifling expense. They can be taken down, removed, and re-erected without injury, and if the whole interior were destroyed by fire, the iron building would remain firm as ever. Mr. B. is prepared to carry out designs for public or private buildings, lighthouses, towers, &c., and refers to the following gentlemen, for whom he has already erected buildings:—Mr. A. S. Abell & Co., Sun Building, Mr. S. M. Shoemaker, of Adams & Co., and Mr. E. Larrabee, Baltimore; Mr. F. Coyle, and Mr. M. Shanks, Washington; Messrs. Tatham & Brothers, Beekman street, Messrs. Hopkins & Brothers, Barclay street, Messrs. H. Sperry & Co., Broadway, adjoining the Tabernacle, and Dr. J. Milhau, Broadway, New York. Others are cautioned against erecting or using these buildings without the consent of the inventor, as he is determined to defend his patent against infringement. 50 tf

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools. 50 6m*

THE NEW BRICK MACHINE—If driven by a horse the clay is thrown into heaps, and each successive layer saturated; after remaining in soak all night it is shovelled into the machine. They were formerly built of two sizes, four and five mold. By a recent improvement the speed of the shaft is increased without changing the gait of the horse, and thus the smaller size can make 1000 bricks per hour, worked by four men and four boys. It is liable to no accident except from stone, which is apt to break a mold. Price $275. For further particulars in a pamphlet containing full instructions on brick burning, address FRANCIS H. SMITH, Baltimore, Md. 50 2*

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 9, 1854. TAFT & GLEASON. 50 1y*

ESTABLISHED IN 1796—Philosophical, Mathematical, and Optical Instruments. Our priced and illustrated Catalogue furnished on application and sent by mail free of charge. McALLISTER & BROTHER, Opticians, 48 Chesnut street, Philadelphia. 50 8

FOR SALE LOW—A second-hand six horse Steam Engine and Boiler, with all the fixtures. Address Wm. W. WOODRUFF, New Britain, Ct. 48 4*

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—For Stationary, Locomotive, and Marine Engines. These Boilers having been thoroughly tested by scientific experiment and practical use, are being rapidly introduced into every part of the United States. Their claims to superiority are fully supported by the united testimony of highly respectable parties, who have given them the most successful trials. The following are among the chief advantages of this Boiler: 1st. Great increase of heating surface, with diminution of bulk. 2nd. Economy of fuel—a saving of more than 50 per cent, being effected over other boilers 3rd. Economy of space, compactness, and strength of form. 4th. Increased safety from explosion. 5th. Freedom from incrustation. Circulars obtained on application at the Company's Office. Boilers of any required power furnished on short notice. Rights negotiated for all parts of the United States, England, France, and Belgium. All communication promptly attended to.
W. F. PHELPS,
45 3m* Sec'y Irving S Boiler Co., 347 Broadway, N. Y.

STAVE AND BARREL MACHINERY—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season, Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads. Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Lathes, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m.*

PIG IRON—Scotch and American; also English Boiler Plate and Sheet Iron, for sale at the lowest marketprices, by G. O. ROBERTSON, 135 Water st. cor. Pine, N. Y. 40tf

BUFFALO MACHINERY DEPOT. JAMES W. HOOKER, 36 Lloyd St., Buffalo, offers for sale all kinds of machinery, as follows: Engine Lathes, Planing Machines, Universal Chucks, Caststeel Borers, Drills, Leather and Rubber Belting, Packing and Hose Oils, Millstones, Portable and Stationary Engines, Boilers, and Machinery generally. 43 tf

PATENT ROCK DRILL.—The simplest, cheapest and best ever offered to the public. For information apply to A. B. ELY, Esq., Boston, Mass., agent of North American Rock Drilling Company. 43 3m

HARRISON'S SUPERIOR GRAIN MILLS—Latest Patent of June 6, 1854.—The New Haven Mfg Co. having the right for said Mills, will keep a supply constantly on hand. A liberal commission paid to agents for sale of the same. For further information address New Haven Manufg. Co., New Haven Ct. 45tf

PATENT RIGHT FOR SALE.—We are ready to dispose of the Patent Right, (or any part of it) of the best Stone Drilling Machine now in use, or we are prepared to furnish working machines at very reasonable prices. these machines will drill from 1 to 7 inches in diameter, and 100 feet deep, and can be worked by Hand, Horse, or Steam Power, one machine performing the work of twenty-five men. For further particulars and circulars with cuts address JAS. T. WHITTEMORE, Agent American Manufacturing Co., 39 State street, Boston. 40 tf

LEONARD & WILSON—No. 60 Beaver st, and 109 Pearl st, have constantly on hand and for sale a full assortment of Machinists' and Carpenters's Tools, embracing every variety of Engine and Hand Lathes, Iron Planing Machines, Mortising and Tenoning Machines, Wood Planers, &c. Also, Leather Belting of all sizes made of the best oak tanned butts, stretched on powerful machines, riveted and cemented. 42 13*

PALMER'S PATENT LEG—"The best appliance ever invented." Pamphlets containing the testimonials of the first American and European surgeons, and other information concerning this invention sent gratis to all who apply to PALMER & CO., Springfield, Mass.: or 376 Chesnut st, Philadelphia. 42 13*

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Wood Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross, at Lowell, or 27 State st., Boston. 36 6m*

READING'S PATENT CORN SHELLER and Cleaner—capacity 200 bushels per hour. 9 first premiums awarded in the Fall of 1853. Patent Rights and Machines now for sale at the corner of 2nd Street and Pennsylvania Avenue, Washington, D. C. I challenge the world to produce its equal. Address personally or by mail. WILLIAM READING. 43 13*

MACHINISTS TOOLS—Power Planers 4 to 16 feet long, weight 1,000 to 10,000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description and prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

THE EUROPEAN MINING JOURNAL, Railway and Commercial Gazette. A Weekly Newspaper, forming a Complete History of the Commercial and Scientific Progress of Mines and Railways, and a carefully collated Synopsis, with numerous Illustrations of all New Inventions and Improvements in Mechanics and Civil Engineering. Office, 26 Fleet Street, London. Price $6 1-2 per annum. 43

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.
CHARLES W. COPELAND,
35 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
27 6m GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16 1y*

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Scientific Museum.

(For the Scientific American.)

Philosophy for Mechanics—Lime.

Many mechanics learn to take advantage of the laws of nature by experience, without knowing to what particular laws they are indebted for success in their several arts. Hence when a failure happens—as it sometimes does—they cannot always account for it.

The natural law by which lime forms a cement with sand, appears not to be generally understood, for it is believed by many that the cement is caused by the adhesive qualities of the lime, and yet lime is but slightly adhesive in itself, for if we rub a lump of lime mortar—which has just been made up and dried—between the fingers, it will crumble like sand. But another lump of the same kind of mortar, which has been made up for a month or more, especially if it has been kept damp during that time, and then dried, will be difficult to crumble. The reason is the latter has had time to combine with a portion of carbonic acid gas, and the former has not; and as it is only upon this combination that we can depend for a good cement, the mortar should be prepared in that way which will the most readily admit the gas; for as the latter constitutes not more than the 1000th part of the atmosphere, the process must necessarily go on slowly. The lime should be made by pouring the water on it, the sand should not be too fine, nor should there be any more water in it than just enough to make the mortar work well; then the work will admit the gas, and each particle of lime and sand will become a nucleus, around which it will consolidate, and bind the whole in a firm compact mass. But when the lime is slaked to saturation by submersion, it not only takes up more carbonic acid gas from the water, by which its capacity for that element is diminished, but if much of it is used, it places the grains of sand too far apart to be firmly united together, and leaves the interstices so small that the action of the gas soon closes on the outside, by which its further entrance is prevented.

For ornamental work, however, this is the way to slake it, for it combines with a larger portion of water and is whiter as well as finer, for water when it parts with its transparency, in assuming the solid state, puts on a robe of the purest white—as in snow.

For walls exposed to the weather it is not so important, but for plastering, the sand and lime should be mixed up two weeks before it is used, and kept wet, for then the strength of the lime becomes diffused throughout the mass, and the water supplies the gas as well as facilitates its combination with the lime, an advantage that it cannot have after it is put on, and sheltered from the weather. And as it is but little more work, the hair should not be put in until the mortar is ready for use, for the wet lime decomposes it.

The thin crust which adheres so tenaciously to the backs of plastering trowels, and about the shanks of brick trowels, is a common specimen of this combination, (carbonate of lime) which is accelerated by the free exposure of those parts to the air.

Carbon in the solid state composes charcoal and the diamond, and in combination with lime—marble and limestone. When any of these substances are burned, or when timber is decomposed by time, the carbon is driven off in the aeriform state, in which it mingles with the atmosphere, to be again taken up by lime-growing trees, &c. So that the carbon liberated by the burning of Rome under Nero, may now occupy a place in modern houses, or it may form a part of those to be built long after all that are now standing shall have crumbled into ruins. H. Pollard.

Lexington, Mo., Aug. 7, 1854.

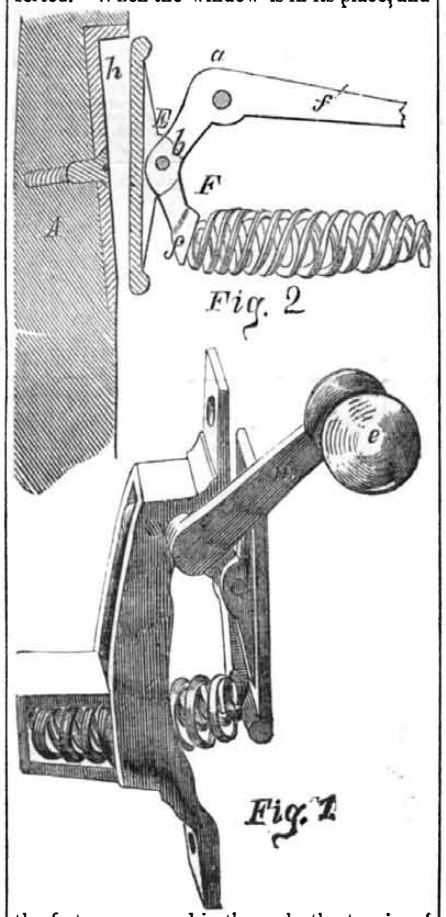
The Iron Foundries in Pittsburg.

It is said there are now in Pittsburg thirty-eight iron foundries; of which nine are almost exclusively employed in the manufacture of steam engines, and twenty-nine in the manufacture of various kinds of hollow ware, machinery, &c. The foundries which are employed in the manufacture of steam engines, consume yearly 3,200 tuns of wrought iron, 9,200 tuns of pig, employ 640 men, and produce 120 steam-engines every year. Their net capital is $549,000.

Sash Stopper and Fastener.

These accompanying two figures are views of two modifications of a sash stopper and fastener for windows, for which a patent has been granted to J. B. S. Hadaway.

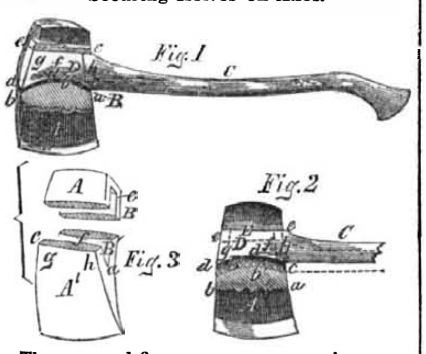
The nature of the invention consists in constructing a sash fastener by the combination of a rocking plate, spiral spring and levers, the plate and spring being acted upon in such a manner by a lever that the window sash can be secured and maintained at any desired point. A, fig. 1, is that part of the case of a window against which the sash abuts. In this part of the case small inclined metal plates, *h*, are set in at one or more points; these form recesses, notched at the upper part. E is what is termed a rocking plate, it forms the catch to project into the recesses in the case, and to be held therein by the tension of the spiral spring, F. *f f'* is a peculiarly formed small lever, it is secured to the plate, E, by a pivot pin, *b*, passing through ears, and is inserted into a recess in the sash of the window, or a small metal box—that is, plate E, lever *f f'*, and spiral spring, F, form the fastener, and are connected together and inserted into the sash, with the rocking plate opposite that part of the case in which the notched plates, *h*, are inserted. When the window is in its place, and



the fastener secured in the sash, the tension of the spring, F, pushes the plate, E, to make it take into the recess formed by the plate, *h*, and prevents the window from being moved. There is a pin inserted into the lever, *f*, at the point, *a*, forming the fulcrum of the lever part, *f'*. By depressing the lever, *f*, by pulling on the lever arm, *f'*, the upper part of the plate will be made to assume the flush position now shown, and allow the window to be raised. There is a small handle with a small cam head inserted into the sash, for elevating and depressing the arm, *f'*, to raise the window. The spring, F, keeps the plate, E, in place in the recess. Fig. 2, is a form of fastener to be placed in the case or frame, the recess plates like *h* being placed in the face of the sash. *e* is a handle, and E is the rocking plate to press into the recess, *h*, like fig. 1. The lever of the handle, *e*, forces the spring back from pressing the plate, E, into the said recess, and thus relieves the stopper so as to move the window up or down. The face of plate E is lined with leather or india rubber, to prevent marking the inside face of the window frame.

More information of this invention may be obtained of W. S. Hadaway, of Chiltonville, Mass., whose advertisement will be found in another page.

Securing Helves on Axes.



The annexed figures represent an improvement in securing helves in axes, for which a patent was granted to Horatio N. and Jeremiah Bill, of Willimantic, Windham Co., Ct., on the 5th of July, 1854.

Figure 1 is a perspective view of an axe and helve, made and connected together—a portion of the metal forming the eye of the axe being broken away to show more clearly the construction of the helve and the eye of the axe; also the manner in which the helve is fitted and secured in the eye. Fig. 2 is a side elevation of the same; the metal forming the eye is broken in a similar manner to figure 1. The helve is in the position it occupies when it is first inserted, and before it is wedged in The dotted lines show its position when wedged in. Fig. 3 represents the axe, it being divided transversely through its eye. These views show the peculiar shape of the eye of the axe. The same letters indicate like parts on all the figures.

A is the axe; B is its eye; C is the helve. The eye and the helve part that enters it are of a peculiar form. The bottom of the eye is made convex as at *a b b*; the lower part, D, of the helve, to fit in it, is made concave, and rounding at *c d d*, so as to correspond to the shape of the eye at *a b b*; the object of thus shaping the lower part of the eye and helve is to give the latter a greater bearing. The eye is made of a tapering wedge-shape—its narrowest part being at *a f*, and its widest part at *e*; the helve corresponds to this, but is not quite so wide at *e*, it being made narrower so that it may be easily inserted and then forced down to the bottom of the eye and wedged tightly by a tapering key, E, as shown in fig. 1, and in dotted lines fig. 2. In fig. 3, it will be observed that the eye of the axe is made narrow near the center of its length, or that the inner walls of the eye are made convex, and nearly meet at *f*, and from this it gradually enlarges towards the top, and back and front edges of the axe, and it decreases in width from *f*, between the points *g* and *h*, towards the lower cutting edge of the axe. The part, D, of the helve is made concave from its upper to its lower edge, and between the points *g* and *h*; and in all other respects to suit the eye, B.

In inserting the helve, the upper part of the edge, D, is kept nearly in contact with the top of the eye, as shown in fig. 2 in full lines, so that it may be inserted with ease. The helve being placed in the eye, as shown, it is forced down towards the bottown of the same, and made to occupy the position shown in fig. 1, and in dotted lines, fig. 2. The tapering key, E, is then driven in, and the helve forced down securely into position. When the helve is thus wedged in, the whole surface of the two side of the part, D, bear against the metal of the axe, and the thickest portions of the helve stand below the point, *f*, and in front and behind the same. Owing to the eye being made tapering from *f* down to its bottom, and gradually enlarging from this point towards the front and back edges, it is evident that it will not be possible for the helve to be drawn out by force except the metal round the eye breaks away, or the wedge be first withdrawn. This plan admits of the parts being made as strong as necessary, and easily put together and taken apart, which is not the case with the present method of securing helves in axes.

More information may be obtained by letter addressed to the patentees.

A False Patentee.

We learn by our Philadelphia cotemporaries, that an inventor in that city has been brought before the Alderman's Court, and held to bail for selling the patent right for an invention of a James' locomotive safety bar, for which no patent has ever been granted. The object of the invention was to prevent damage to cars in cases of collision. The prosecutor was John G. Collins, an engineer who made the drawings of the model, for which he was paid in a certificate of a share in the patent of $25.

LITERARY NOTICES.

Barnum's Autobiography is really about to appear, some extracts having already been published in the "Bridgeport Standard." We have some idea of what it is likely to be, as Barnum has passed through almost every phase of life, and has humor and social feeling woven into every tissue of his nature. He has genius enough to make a book, and given in his own peculiar style, it will form at once an attractive and instructive volume.

The London Quarterly Review—The last number of this able Review has just been issued by its enterprising publishers, Leonard Scott & Co., No. 79 Fulton street, this city. Its leading article is on the House of Commons, and is very interesting. It asserts that eloquence is almost unknown in the British Parliament. Some of the most conspicuous characters, such as Disraeli, Lord John Russel, &c., are described. It is a most excellent number.

Blackwood's Magazine—The same publishers have promptly issued "Old Ebony," the King of magazines for August. It contains the best account yet published of the recent successful insurrection in Spain. Another article on the ethnology of Europe is well worthy of perusal by every person who wishes to be posted up in the natural history of man.

The Illustrated New York Journal—Published by P. D. Orvis, 130 Fulton street, New York. The number for September contains several fine engravings, the most interesting being those of Cronstadt and Sebastopol, the most celebrated fortified cities in Russia. The tales, sketches, poetry, and miscellany are full of interest. Yearly subscription, $2 per annum.

Putnam for September. The present number of this excellent original magazine is illustrated with a fine steel plate of the author of "Swallow Barn," Hon. J. P. Kennedy. There are eighteen original articles, equal to any in the most celebrated magazines of the old world.

The National Magazine for September contains an engraving of Donald McKay, the celebrated ship builder, also pictures of scenes in Russia and Turkey. The series of illustrated articles in the life of Martin Luther are interesting. This magazine abounds in good reading and fine engravings, thus forming an elegant work. Carlton & Phillips, publishers, N. Y.

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